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U. S. DEPARTMENT OF AGRICULTURE

Cooperative ECONOMIC INSECT REPORT

Issued by

PLANT PEST CONTROL DIVISION
AGRICULTURAL RESEARCH SERVICE
UNITED STATES DEPARTMENT OF AGRICULTURE

AGRICULTURAL RESEARCH SERVICE

PLANT PEST CONTROL DIVISION

PLANT PEST SURVEY SECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Plant Pest Control Division
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Volume 8 May 23, 1958 Number 21

COOPERATIVE ECONOMIC INSECT REPORT

Highlights of Insect Conditions

GRASSHOPPERS hatching in southern Illinois, Kansas, southwestern Oklahoma and some other areas. Outbreak in Arizona damaged crops in some areas. Nymphs active in Idaho. (p. 403). EUROPEAN CORN BORER survival 80 and 85 percent in two Wisconsin counties. (p. 403). CORN EARWORM buildup in Florida. (p. 404). FLEA BEETLES abundant and damaging in several states. (p. 404, 410). ARMYWORM heavy in southwestern Oklahoma small grains, with moderate to heavy moth flights in Missouri and larger numbers in Virginia. (p. 404). FALL ARMYWORM increasing in Alabama. (p. 404).

Heavy CUTWORM damage to alfalfa expected in many Oklahoma localities. (p. 405). ALFALFA WEEVIL found for first time in 3 Virginia counties and causing heavy damage to unsprayed alfalfa in several states. (p. 405). SWEETCLOVER WEEVIL damaging clover in Idaho and Washington. (p. 406). PEA APHID threat to peas greater in Wisconsin than in 1957. (p. 406). POTATO LEAFHOPPER as far north as Kansas and Virginia. (p. 406).

CODLING MOTH emerging in Illinois, Delaware and Kansas. (p. 408).

BOLL WEEVIL survival in Tennessee. (p. 412). BROWN COTTON LEAFWORM in Louisiana and Texas. (p. 413).

CANKERWORMS more destructive in Kansas than in 9 years and causing some injury in Minnesota. (p. 415).

Distribution of a JAPANESE WEEVIL. (p. 414).

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Submission of Light Trap Material for Identification. (p. 418).

SUMMARY OF FOREST INSECT CONDITIONS - 1957. (p. 419).

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Reports in this issue are for the week ending May 16 unless otherwise designated.

WEATHER OF THE WEEK ENDING MAY 12

Temperatures for the week averaged above normal over most of the Nation. Showers occurred west of the Continental Divide only on the first day, in the central Great Plains third to fifth days, in north central areas over the weekend, and in the Northeast about the middle of the period and again over the weekend. With mild temperatures and mostly fair weather, the period was most favorable for agriculture in the Midwest and Southeast for several weeks. In Tennessee last week was the warmest since last September and the first dry week over the entire State since February. However, in many lowland areas the soil was still too wet to work, some lowland flooding continued in Kentucky, and many lowland areas were still under water in Louisiana. On the 18th up to 10 inches of rain from Biloxi, Mississippi westward across southern Louisiana caused heavy local flood damage. The frequent rains in the central Great Plains totaled 2 to 4 inches in the western half of Kansas and caused some flooding. Up to 3 inches in extreme western Oklahoma and 2 to 4 inches in northwestern Texas maintained excellent prospects for small grains. In Colorado rains totaled 1 to 2 inches in the eastern plains, with some local flooding in the southeastern portion, and scattered hailstorms caused considerable crop damage.

Incipient drought conditions continued in an area extending from eastern Montana to Michigan, although showers on the 17th replenished topsoil moisture in Minnesota and some other sections of the area. In much of this region, total precipitation for the period January 1 through May 18 has been less than 50 percent of normal. In Wisconsin, small streams and ponds are drying, and the water table is lowering rapidly. Dry soil has slowed corn planting in both Wisconsin and Michigan. A cold snap in the Northeast at the beginning of the period was responsible for freezing in eastern New York State and parts of New England. The weather was abnormally cool in the Northeast until an abrupt change occurred during the weekend when maximum temperatures rose into the 70's and 80's. Also at the beginning of the period a cold spell in the Pacific Northwest reduced temperatures nearly to record low levels for the season. Freezing occurred in most valleys of Washington, and in Oregon widely scattered frost occurred and up to an inch of snow fell in the northeastern part of the State. (Summary supplied by U. S. Weather Bureau.)

WEATHER BUREAU 30-DAY OUTLOOK

MID-MAY TO MID-JUNE 1958

The Weather Bureau's 30-day outlook for mid-May to mid-June calls for temperatures to average slightly below seasonal normals east of the Appalachians and in the extreme Southeast. Above normal temperatures are predicted over the northern half of the area lying between the Great Lakes and the Rockies, as well as along the West Coast. In unspecified areas near normal averages are in prospect. Precipitation is expected to be subnormal over the Pacific Northwest and particularly over the Great Lakes and Upper Mississippi Valley where rainfall has been generally deficient for almost two months. Above normal rainfall is anticipated over the Central and Southern Plateau States and in the Southern Plains. Near normal amounts are indicated for areas not specified.

Weather forecast given here is based on the official 30-day "Resume and Outlook", published twice a month by the Weather Bureau. You can subscribe through Superintendent of Documents, Washington 25, D. C. Price $4.80 a year, $2.40 a half year.

CEREAL AND FORAGE INSECTS

GRASSHOPPERS - WISCONSIN - Most adults and nymphs so far observed are of overwintering non-economic species. Eggs of economic species in clear stage, but continued dry weather and slow and sparse vegetative growth with high temperatures could increase potential threat to forage this season. (Wis. Coop. Sur.). MINNESOTA - Eggs of *Melanoplus femur-rubrum* in clear to coagulated stage in southeastern and south central districts. Generally clear in heavier soils and coagulated in lighter soils of central and west central districts. Eggs of *M. bivittatus* in heavier soils of Stearns, Wilkin and Otter Tail Counties are coagulated and are in eye-spot stage on lighter soils of Stearns and Todd Counties. (Minn. Ins. Rpt.). ILLINOIS - Beginning to hatch in southern areas. (Ill. Ins. Rpt.). NORTH DAKOTA - Egg development survey completed in western area May 9 showed *M. bivittatus* 65 percent segmented, 35 percent eye-spot, and *M. differentialis* and *M. bilituratus* 50 percent segmented and 50 percent eye-spot. No evidence of hatch in area surveyed. (N. D. Ins. Rpt.). Overwintering nymphs and adults of *Psoloessa delicatula* and *Eritettix* spp. present but not numerous, Billings County. (Burge). SOUTH DAKOTA - Eggs of *M. bivittatus* approximately 5 percent hatched in extreme southeastern areas, nymphs averaging 10-12 per square yard along some field margins and roadsides. (King, Hantsbarger). KANSAS - Hatch underway across State. *Melanoplus* spp. nymphs readily found nearly all fields surveyed in 3 east central and 4 northeast counties. Nymphs range 2-7 per square yard where found. Heavy counts of nymphs indicated in abandoned and weedy fields in southwestern area. (Matthew). OKLAHOMA - Hatching continuing in southwestern counties. Rangeland numbers generally light, 2-8 nymphs per square yard. *M. bivittatus* and *M. differentialis* nymphs mostly second to fourth instar. (Coppock). MONTANA - Based on 1957 surveys, extensive areas of Indian and Bureau of Land Management lands in Blaine, Phillips and Garfield Counties may be infested in 1958. (PPC, West. Reg. Apr. Rpt.). WYOMING - Some 10,000 acres of Bureau of Reclamation rangeland in Fremont County are infested with grasshoppers, and the infestation threatens crops in the Riverton area. (PPC, West. Reg. Apr. Rpt.). IDAHO - First-instar nymphs appearing in clover and alfalfa fields, along roadways and ditch banks and on range in most southwestern and south central areas. (Waters, Gittins, Smith). UTAH - Moderately numerous in local areas as far north as Cove Fort, Millard County and Beaver, Beaver County. Most threatening in Enterprise, Beryl and Newcastle areas of Washington and Iron Counties. Some hatching in warmer areas and on south slopes in several counties. Third-instar nymphs extremely abundant in some alfalfa fields at Moab, Grand County. (Knowlton). NEVADA - First-instar *Oedaleonotus enigma* appeared in the sheltered canyon of burned-over areas where cheat grass covers the range in central Elko County. *Camnula pellucida* hatching in isolated areas, but main hatch not yet reached. (PPC, West. Reg. Apr. Rpt.). NEW MEXICO - *Trimerotropis pallidipennis* averaged 5-10 per square yard near Hachita, Grant County. (N. Mex. Coop. Rpt.). ARIZONA - *T. pallidipennis* developed in outbreak numbers in many areas on large acreages of desert range adjacent to croplands in Pinal and Maricopa Counties. Nymphal and adult migrations began when desert grasses suddenly dried with advent of warm weather. Damage was especially severe in the Maricopa-Casa Grande-Coolidge area, particularly to sprouting cotton in the immediate paths of migrating bands of nymphs. (PPC, West. Reg. Apr. Rpt.). CALIFORNIA - *Trimerotropis* sp. light on alfalfa in Calexico area, Imperial County and *M. bilituratus* light on same crop in this area and in Imperial area. *Melanoplus* sp. heavy on range grass and lawns at Ukiah, Mendocino County. *Stichippus californicus* and *Oedaleonotus enigma* heavy on grazing lands and in fields in Cuyama Valley, Santa Barbara County. (Cal. Coop. Rpt.).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - MINNESOTA - No pupation observed in southeastern and south central districts. (Minn. Ins. Rpt.). NORTH CAROLINA - Two-thirds emerged Pasquotank County. (Jones). IOWA - Pupation 32 percent on May 15, compared with 2 percent on same date in 1957. (Iowa Ins. Inf.). WISCONSIN - Counts indicate 80 percent survival in Dane County and 85 percent in Rock County. (Wis. Coop. Sur.). ILLINOIS - Pupation 10 percent in southern and 0 in central areas. (Ill. Ins. Rpt.). MISSOURI - Approximately 10 percent pupation in standing stalks, Boone County, May 12. Overwintering larvae averaged 994 per acre, Boone County, and 1,221 in Henry County. (Munson).

CORN EARWORM (Heliothis zea) - FLORIDA - Inspection of corn in the Ft. Myers area, Lee County, indicates buildup. One field was 40-50 percent infested. (Fla. Coop. Sur., May 9). ALABAMA - Eggs on early sweet corn, Baldwin County. (Eden). Larvae and adults plentiful, Lee County. (Guyton).

FLEA BEETLES - VIRGINIA - Adult Epitrix sp. feeding on seedling corn in some fields, Pittsylvania County. (Dominick). MINNESOTA - Four to 15 per 10 sweeps in alfalfa fields. (Minn. Ins. Rpt.). OKLAHOMA - Replanting of corn in Johnston County due to severe damage. Remain abundant throughout State, but damage lessened as corn is making good growth. (Coppock,Vick). OREGON - Unusual damage to crimson clover, Polk County. (Dickason). TEXAS - Large numbers of Chaetocnema sp. in corn, Rockwall County. (Hawkins). Some corn showing severe damage, Grayson and Collin Counties. (Chada). MISSOURI - Chaetocnema pulicaria damage to corn continues over much of southern two-thirds of State, 2-6 beetles per plant with 90-100 percent of plants showing damage. (Kyd, Thomas). KANSAS - C. pulicaria heavy in nearly all corn fields throughout eastern half of State; destructive in some fields. Averaged 2-3 per plant in Kansas River Valley. (Matthew). Averaged 7 per plant, Riley County. (Burkhardt).

BILLBUGS - GEORGIA - Moderate to heavy on corn in 13 counties. (Johnson). ALABAMA - Calendra maidis light in Dallas and Crenshaw Counties. (Grimes).

ARMYWORM (Pseudaletia unipuncta) - ARKANSAS - Averaged 4-5 first and second-instar larvae per square foot in oats, Arkansas County. (Boyer, Rouse). LOUISIANA - Decreasing in Tensas Parish, with 2 per 100 sweeps on oats and wheat. (Glower, Spink). OLKAHOMA - Heavy in margins of small grains and in roadsides, southwestern counties, commonly 15-45 larvae per square yard. Mostly early to mid-instar larvae. Spray program warranted in field margins. (Coppock, Hatfield). ILLINOIS - Few in grain fields, 18 per 100 sweeps in grass, southwestern areas. (Ill. Ins. Rpt.). TEXAS - Ranged 4-15 per square foot in vetch and small grain, Delta, Hunt and Rockwall Counties. (Hawkins). MISSOURI - First and second-instar larvae range 8-20 per square foot in barley and 2-4 in wheat, extreme southeast area. Moderate to heavy moth flight continues over most of State. (Harrendorf). ALABAMA - Serious damage to wheat and oats in Dallas County. (Grimes). VIRGINIA - Being taken in larger numbers in light trap at Norfolk than during past two years, but no field infestations have been noted as yet. (Hofmaster).

CHINCH BUG (Blissus leucopterus) - ALABAMA - Light damage to corn in southern areas. (Grimes). MISSOURI - Migration from overwintering habitat complete. Adults range 1-7 per linear foot of row in small grains. Unusual number of adults on seedling corn, with damage in southwest and north central areas. (Kyd, Thomas).

ENGLISH GRAIN APHID (Macrosiphum granarium) - ARKANSAS - Very low. (Boyer). OKLAHOMA - Numbered 0-40 per head of wheat with 65-80 percent of heads infested in southwestern counties. Considerably lighter in central and northern counties. (Coppock, Hatfield). ILLINOIS - Average 200 per 100 sweeps in southwestern wheat. (Ill. Ins. Rpt.). SOUTH DAKOTA - Winged forms in some central area winter wheat fields, averaging one per 10 sweeps. (Hantsbarger). KANSAS - Increasing. Range 6-30 per sweep in east central area. About 10 percent of barley heads infested with average of one per head. (Matthew).

FALL ARMYWORM (Laphygma frugiperda) - LOUISIANA - Infestation in corn up to 60 percent. (Spink et al.). ALABAMA - Increasing in Baldwin and Escambia Counties. (Eden, Grimes).

A SAWFLY (*Macrophya pluricincta*) - CALIFORNIA - Heavy in wheat fields in Livermore area, Alameda County. (Cal. Coop. Rpt.).

SAY STINK BUG (*Chlorochroa sayi*) - UTAH - Extremely abundant among weeds and in windbreaks adjacent to small grain fields in Enterprise area, Washington County. (Knowlton).

SUGARCANE BEETLE (*Euetheola rugiceps*) - ALABAMA - Considerable damage to corn stands in southern areas, with 20 acres completely destroyed in Conecuh County. (Grimes).

SUGARCANE BORER (*Diatraea saccharalis*) - LOUISIANA - Larval infestation ranged 7-35 percent in 11 plantations examined in 9 parishes. First record of pupae of first-generation larvae made from Terrebonne Parish, with 7 found. (Hensley, Long, Spink).

WIREWORMS - WISCONSIN - Several counties report large numbers. (Wis. Coop. Sur.).

ALFALFA CATERPILLAR (*Colias philodice eurytheme*) - SOUTH DAKOTA - Light populations appearing in southeastern alfalfa fields, approximately one larva per 50 sweeps. (Hantsbarger).

RICE STINK BUG (*Oebalus pugnax*) - ARKANSAS - Averaged 4-8 per 10 sweeps on oats in southeast counties. (Boyer).

CUTWORMS - MASSACHUSETTS - Damaging alfalfa. (Wheeler, May 9). ARKANSAS - Second and third instar larvae of *Peridroma margaritosa* found 4-8 per square yard in vetch and oats, Lafayette County. (Boyer). OKLAHOMA - *Peridroma margaritosa* heavy in most alfalfa fields in 4 southwestern counties, 25-45 larvae per 10 sweeps common. Moderate to heavy damage expected in many localities. Egg deposition heavy. (Coppock). WISCONSIN - Several counties report large numbers. (Wis. Coop. Sur.). ILLINOIS - *P. margaritosa* averaged 5.3 per 100 sweeps in southwestern legumes. (Ill. Ins. Rpt.). TEXAS - *P. margaritosa* ranged 4-15 per square foot in vetch and small grain, Delta, Hunt and Rockwall Counties. (Hawkins). MISSOURI - Very small larvae of *P. margaritosa* appearing in alfalfa, ranging 0-2 per square foot, with hatch continuing. (Kyd, Thomas).

GREEN CLOVERWORM (*Plathypena scabra*) - MINNESOTA - Larval numbers low in alfalfa, Dakota, Fillmore and Freeborn Counties. Very damaging to soybeans and seedling alfalfa in 1957. (Minn. Ins. Rpt.).

ALFALFA WEEVIL (*Hypera postica*) - NEW JERSEY - Causing heavy damage in unsprayed alfalfa in southern areas. Damage as far north as Warren County. (Ins. Dis. Newsl.). MARYLAND - Damage moderate to heavy on unsprayed alfalfa, eastern and central sections. (U. Md., Ent. Dept.). DELAWARE - First pupae collected in eastern Sussex County, May 13. Unsprayed fields showing visible damage in all parts of State. (MacCreary, Conrad). VIRGINIA - Larvae continue to damage alfalfa in many parts of the State. Found for the first time in Bland, Smyth and Tazewell Counties. (Morris). UTAH - Damage severe at Green River, Emery County. (Knowlton). IDAHO - Larvae continue light in most alfalfa fields throughout south central and southwestern areas. Adults also light most areas, seldom exceed one per sweep. (Gittins).

CLOVER LEAF WEEVIL (*Hypera punctata*) - NEW JERSEY - Injury more apparent than usual. (Ins. Dis. Newsl.). MASSACHUSETTS - Abundant and pupating. (Wheeler, May 9). VIRGINIA - Larvae averaged 4 per 100 sweeps in 35 southwestern alfalfa fields. (Morris). IOWA - Average 5 per plant in Linn County. (Iowa Ins. Inf.).

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris) - ILLINOIS - Injury to stems 30 percent in west southwest and 45 percent in southwestern localities. (Ill. Ins. Rpt.).

PEA LEAF WEEVIL (Sitona lineata) - OREGON - Varies from trace to 3-5 per sweep in vetch and clover fields. (Capizzi).

SWEETCLOVER WEEVIL (Sitona cylindricollis) - IDAHO - Damage to sweetclover in Nez Perce County. (Kambitsch, Portman). MINNESOTA - Not yet evenly distributed in a field sampled near Crookston, Polk County. (Minn. Ins. Rpt.). IOWA - Average 1 per sweep in alfalfa and clover. (Iowa Ins. Inf.). WASHINGTON - Damaging experimental sweetclover in Whitman County. (Telford).

LYGUS BUGS (Lygus spp.) - IDAHO - Populations from 1-20 per sweep in southwestern alfalfa and red clover with nymphs appearing in considerable numbers. (Gittins). MINNESOTA - L. lineolaris ranges 1-12 per 10 sweeps in alfalfa in southeastern and south central districts. (Minn. Ins. Rpt.). NEW MEXICO - Very heavy in range weeds and alfalfa, Luna County. Average 1 adult and 4 nymphs per sweep in alfalfa, Socorro County. (N. Mex. Coop. Rpt.). WISCONSIN - Overwintering L. lineolaris adults in most alfalfa fields, highest average 2 per sweep in a Sauk County field. (Wis. Coop. Sur.). ILLINOIS - L. lineolaris adults average 32 per 100 sweeps in west southwest and 24 in southwest. (Ill. Ins. Rpt.). SOUTH DAKOTA - Average 6 per 10 sweeps in some alfalfa fields in southeastern, central and east central areas. Recently hatched nymphs appearing. (Hantsbarger).

PLANT BUGS - MINNESOTA - Adelphocoris lineolatus and A. rapidus hatching in small numbers in southeastern alfalfa and clover fields. (Minn. Ins. Rpt.). ILLINOIS - Average per 100 sweeps is 27 in west southwest and 49 in southwest. (Ill. Ins. Rpt.).

PEA APHID (Macrosiphum pisi) - NEW JERSEY - Less numerous than usual on alfalfa. (Ins. Dis. Newsl.). MARYLAND - Generally light in central sections, but building up rapidly in alfalfa on Eastern Shore with as many as 200 per sweep. (U. Md., Ent. Dept.). VIRGINIA - Generally light to medium in 35 alfalfa fields surveyed in southwestern counties, averaging 33 per sweep. (Morris). Has increased rapidly in Augusta County, damaging in a few alfalfa and clover fields. (Woodside). MINNESOTA - Ranges 7-18 per 10 sweeps in alfalfa in southeastern and south central districts. (Minn. Ins. Rpt.). WISCONSIN - Being favored by weather conditions, reproducing rapidly in alfalfa, 0.5-10 per one sweep in 16 counties. Potential threat to peas greater than at same time in 1957. (Wis. Coop. Sur.). ILLINOIS - Averages per 100 sweeps are 1,160 in west southwest, 5,000 in southwest and 480 in northern areas. Fungus disease prevalent in southern sections. (Ill. Ins. Rpt.). IOWA - Ranges 1-10 per sweep. (Iowa Ins. Inf.). ARKANSAS - Reduced to very small numbers in areas checked. (Boyer). MISSOURI - Ranges 9-95 per sweep of alfalfa, southwest area. Most fields too far along in growth and development for extensive damage. (Kyd, Thomas, May 10). SOUTH DAKOTA - Has increased up to 50 per 10 sweeps on alfalfa in southeastern, central and east central areas. (Hantsbarger). KANSAS - Light to moderate in nearly all alfalfa fields examined in east central and northeastern counties, ranging to near 300 per sweep. (Matthew). OKLAHOMA - Low numbers in most southwestern alfalfa. (Coppock). IDAHO - Lower than expected in southwestern and south central alfalfa fields, averages approximately 3 per sweep. (Gittins). NEW MEXICO - Moderate to heavy in southern county alfalfa fields. (N. Mex. Coop. Rpt.).

YELLOW CLOVER APHID (Therioaphis trifolii) - ILLINOIS - Averages 412 per 100 sweeps of red clover in southwestern areas. (Ill. Ins. Rpt.).

POTATO LEAFHOPPER (Empoasca fabae) - MINNESOTA - None found to May 16. (Minn. Ins. Rpt.). KANSAS - Averaged 8 per 100 sweeps on alfalfa in localized areas of Shawnee and Douglas Counties. (Matthew).*

SIX-SPOTTED LEAFHOPPER (Macrosteles fascifrons) - MINNESOTA - None found to May 16. (Minn. Ins. Rpt.). SOUTH DAKOTA - Up to 4 per 10 sweeps in alfalfa in central area and up to 14 per 10 sweeps in wheat, central and south central areas. (Hantsbarger).

SPITTLEBUGS - MASSACHUSETTS - Difficult to find. (Wheeler, May 9). NEW JERSEY - Causing concern on clover but damage to alfalfa will be light. (Ins. Dis. Newsl.). VIRGINIA - P. leucophthalmus generally medium to heavy in alfalfa fields surveyed in southwestern counties. (Morris). WISCONSIN - overwintering eggs of P. leucophthalmus mostly hatched. Nymphal numbers vary between fields and between localities. (Wis. Coop. Sur.). MICHIGAN - Philaenus leucophthalmus 50 percent hatched in the Niles-Benton, Harbor-South Haven triangle, May 2. (Hutson). ILLINOIS - Nymphs of P. leucophthalmus in first-year hay crop average 95 per 100 sweeps in northern 2 or 3 tiers of counties. (Ill. Ins. Rpt.). IOWA - P. leucophthalmus increased in Tama County, averaged 1 per square foot in Cedar County. (Iowa Ins. Inf.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - ALABAMA - Found for first time in Fayette and Lamar Counties, very light. (Grimes). ARKANSAS - None found in southwest where present earlier. (Boyer). MISSOURI - None found in southwest area. (Kyd, Thomas, May 10). KANSAS - None found in alfalfa fields surveyed in 3 east central and 4 northeastern counties. (Matthew). Slight buildup in Sedgwick County. (Gates). OKLAHOMA - Remains light in southwestern and south central counties, but averages 200-300 per 10 sweeps in a few fields, Washita and Harmon Counties. (Coppock, Hatfield). TEXAS - Scarce in north central alfalfa fields. (Chada). NEW MEXICO - Heavy populations continue to damage alfalfa in Chaves, Eddy, Dona Ana and Luna Counties. Light in Sierra and Socorro Counties. (N. Mex. Coop. Rpt.). UTAH - Remains scarce in Washington County. (Knowlton). CALIFORNIA - Light in Maxwell area, Colusa County. (Cal. Coop. Rpt.).

SWEETCLOVER APHID (Myzocallidium riehmi) - MINNESOTA - Sampling in Crookston-Fisher area, Polk County, indicates very low populations, but may be too early for reliable estimate of expected populations. (Minn. Ins. Rpt.).

THRIPS - NEW MEXICO - Very abundant in seedling alfalfa, Dona Ana, Eddy and Luna Counties. (N. Mex. Coop. Rpt.). CALIFORNIA - Limothrips cerealium heavy on corn in Spring Valley, San Diego County. (Cal. Coop. Rpt.).

VETCH BRUCHID (Bruchus brachialis) - OKLAHOMA - Averaged 2-4 per 10 sweeps in one vetch field, Kingfisher County. (Coppock). TEXAS - Five per sweep in vetch, Van Zandt and Delta Counties. (Hawkins). Heavy in Kaufman County. (Randolph).

A WEBWORM (Loxostege sp.) - TEXAS - Large infestation in alfalfa, Burleson County. (Randolph).

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*VIRGINIA - First records of season; one adult per 100 sweeps in each of Smyth and Washington Counties. (Morris).

FRUIT INSECTS

RED-BANDED LEAF ROLLER (Argyrotaenia velutinana) - NEW JERSEY - Active on apples in Gloucester County. (Ins. Dis. Newsl.). ILLINOIS - Hatch practically complete at Carbondale. (Meyer). INDIANA - Egg masses at Vincennes and Linton 74 percent hatched on May 6 and 7. (Hamilton). MICHIGAN - Hatching at Niles, Coloma and Benton Harbor May 9. (Hutson). VIRGINIA - Hatching May 8 in apple orchards in Augusta County. (Woodside). MINNESOTA - Adults observed in southeastern orchard area. (Minn. Ins. Rpt.). WISCONSIN - Adults emerged and began ovipositing last of April, Door County. (Wis. Coop. Sur.). WEST VIRGINIA - Peak hatch of first brood passed on apple in eastern panhandle. (W. Va. Ins. Sur.).

PLUM CURCULIO (Conotrachelus nenuphar) - ILLINOIS - Numbers jarred not increasing at Carbondale.(Meyer). INDIANA - On May 12, 186 adults jarred from 5 peach trees in abandoned orchard at Vincennes compared with 53 for previous week. (Hamilton). MICHIGAN - Active at Niles, Sodus and St. Joseph. (Hutson). MINNESOTA - Emergence begun in southeastern area. (Minn. Ins. Rpt.). NORTH CAROLINA - Larvae reached pits of peaches in Rockingham County. (Farrier). GEORGIA - Peach drop caused by plum curculio over and 5,552 larvae have emerged to May 12, from a bushel of drops picked up in a commercial peach orchard in Fort Valley. (Snapp). PENNSYLVANIA - First cutting of plum, Adams County. (Adams). MASSACHUSETTS - Total of 12 curculio beetles jarred from test trees through Monday, May 19 at Waltham. (Crop. Pest Cont. Mess.).

CODLING MOTH (Carpocapsa pomonella) - ILLINOIS - Began emerging May 11 at Anna. (Meyer). DELAWARE - Adult emergence begun on May 13 from cage in Kent County. (MacCreary, Conrad). KANSAS - Emerging in orchards in Sedgwick and Reno Counties. (Eshbaugh).

ORIENTAL FRUIT MOTH (Grapholitha molesta) - MICHIGAN - Adults observed at Coloma, May 10. (Hutson).

ROSY APPLE APHID (Anuraphis roseus) - INDIANA - A. roseus and Rhopalosiphum fitchii continue to attack apples heavily at Orleans. (Marshall). One infestation of A. roseus at Vincennes heavy enough to warrant control. (Hamilton). MICHIGAN - Scarce in Coloma, Paw Paw, Allegan and South Haven area. (Hutson, May 7). MARYLAND - Damage to apple leaves noted in Talbot County. (U. Md., Ent. Dept.). VIRGINIA - Light in apple orchards in Augusta County. (Woodside).

WATERLILY APHID (Rhopalosiphum nymphaeae) - CALIFORNIA - Heavy on plums in Madera County. (Cal. Coop. Rpt.).

GREEN PEACH APHID (Myzus persicae) - NEW MEXICO - Heavy damage to peach trees throughout State. (N. Mex. Coop. Rpt.). WASHINGTON - Alate-spring migrants south of Wenatchee. (Landis).

APPLE APHID (Aphis pomi) - IDAHO - Infestations developing on apples in Payette and Fruitland areas. (Gittins). VIRGINIA - Common some apple orchards in Augusta County. (Woodside).

APPLE GRAIN APHID (Rhopalosiphum fitchii) - WISCONSIN - Very numerous on apple fruit stems in Gays Mills and other areas. (Wis. Coop. Sur.).

EUROPEAN RED MITE (Panonychus ulmi) - ILLINOIS - Numerous eggs being laid at Carbondale. (Meyer). INDIANA - Populations at Vincennes light; first-brood adults laying eggs May 7. (Hamilton). MICHIGAN - Fifty percent hatched on apples and plums in several areas. (Hutson, May 3). WISCONSIN - Hatching in Door County about May 9. (Wis. Coop. Sur.). SOUTH DAKOTA - Adults feeding on apple leaves in Brookings vicinity. (Hantsbarger). WEST VIRGINIA - Building up slowly on apple in eastern panhandle. (W. Va. Ins. Sur.).

PEAR LEAF BLISTER MITE (*Eriophyes pyri*) - IDAHO - Heavy infestations developing on pear trees in Fruitland and Payette areas; particularly in orchards where dormant sprays neglected. (Gittins). OREGON - Building up noticeably in some pear orchards in Marion and Yamhill Counties. (Stephenson).

CLOVER MITE (*Bryobia praetiosa* complex) NEW MEXICO - Light to heavy on apples in fruit-growing areas. (N. Mex. Coop. Rpt.). CALIFORNIA - Heavy on peach trees in Placerville area of El Dorado County. (Cal. Coop. Rpt.).

CATFACING INSECTS - ILLINOIS - Stink bugs very active on peaches and apples at Carbondale. (Meyer).

CALIFORNIA PEAR-SLUG (*Pristiphora californica*) - OREGON - An unusually heavy outbreak caused defoliation in a few orchards in Medford area, May 8. (Gentner).

FRUIT TREE LEAF ROLLER (*Archips argyrospila*) - OREGON - Abundant in local areas of Yamhill County, especially on pears. (Stephenson).

EUROPEAN FRUIT LECANIUM (*Lecanium corni*) - WASHINGTON - Light to heavy damage to apricot. (Anthon).

A LEAF ROLLER (*Archips rosana*) - OREGON - Local serious infestations developing in Polk and Benton County filbert orchards where this pest was abundant a year ago. (Stephenson, Capizzi).

LESSER PEACH TREE BORER (*Synanthedon pictipes*) - INDIANA - First pupae found May 12 at Vincennes. (Hamilton).

PEAR PSYLLA (*Psylla pyricola*) - IDAHO - Adults becoming increasingly active on pears in Fruitland and Payette areas. (Gittins).

SAN JOSE SCALE (*Aspidiotus perniciosus*) - ALABAMA - Heavy on apple trees. Young scales on fruit. (Guyton).

WESTERN CHERRY FRUIT FLY (*Rhagoletis cingulata indifferens*) - OREGON - First adult of season at The Dalles,May 12. (Ellertson).

PECAN LEAF CASEBEARER (*Acrobasis juglandis*) - ALABAMA - Heavy in Escambia County. Beginning to pupate in Baldwin County. (Grimes, Eden).

TRUCK CROP INSECTS

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) - PENNSYLVANIA - General in Lancaster County on potato. (Pepper). DELAWARE - Adults common and depositing eggs on potatoes in Sussex County. (MacCreary, Conrad). MARYLAND - Moderate numbers of adults on potatoes at Quantico. (U. Md., Ent. Dept.). NORTH CAROLINA - Early-instar larvae feeding on eggplant and potatoes in Duplin County. (Reid, Farrier). GEORGIA - Light on tomatoes in five counties. (Johnson). ALABAMA - Heavy on potatoes in central area. (Grimes). IDAHO - First adult of season in Moscow area. (Manis).

EUROPEAN CORN BORER (*Pyrausta nubilalis*) - NORTH CAROLINA - Adults abundant in potato fields in Pasquotank County with oviposition observed. (Jones).

GRASSHOPPERS (*Trimerotropis* spp.) - NEW MEXICO - Caused reduction of tomato stands near Deming, Luna County. (N. Mex. Coop. Rpt.).

IMBRICATED SNOUT BEETLE (*Epicaerus imbricatus*) - ALABAMA - Severe damage to tomato plants in Blount County. (Grimes).

FLEA BEETLES - DELAWARE - *Epitrix cucumeris* common on potatoes in central Kent County. (MacCreary, Conrad). MARYLAND - Light to moderate numbers of *Epitrix hirtipennis* on tomatoes and potatoes and *E. cucumeris* on potatoes on Eastern Shore. (U. Md., Ent. Dept.). VIRGINIA - Extensive damage to young tomato plants and general on potatoes on Eastern Shore. (Hofmaster). NORTH CAROLINA - Severe damage to some fields of eggplant caused by *Epitrix fuscula* in Duplin County. (Farrier, Reid, Weisman). *E. cucumeris* numerous on potatoes in Pasquotank County. (Jones, Weisman). IOWA - *E. cucumeris* common on potatoes. (Iowa Ins. Inf.). WISCONSIN - Heavy populations on tomato and cabbage transplants, radishes and potatoes in some counties. (Wis. Coop. Sur.). IDAHO - Severe infestations and damage from adult *Phyllotreta pusilla* on beets and radishes in parts of Minidoka and Cassia Counties. (Gittins, Priest).

CUTWORMS - MASSACHUSETTS - Unusually abundant on truck crops. (Wheeler). IDAHO - Early instars of *Euxoa ochrogaster* causing sufficient defoliation to require control in sugar beet fields in Jerome County. (T.F.F.S.). NORTH DAKOTA - Numerous reports of injury to young vegetable transplants from Fargo area. (N. Dak. Ins. Rpt.). CALIFORNIA - *Diarsia rosaria* lightly damaging strawberries in Salinas area of Montgomery County. (Cal. Coop. Rpt.). ALABAMA - Damaged tomatoes in Blount County. (Grimes). WASHINGTON - Heavy larval damage by *Euxoa* spp. on 8 acres of a 50-acre hop field at Union Gap. (Landis).

IMPORTED CABBAGEWORM (*Pieris rapae*) - MARYLAND - Occasionally noted on cabbage north of Salisbury. (U. Md., Ent. Dept.). NORTH DAKOTA - First adults May 6 at Fargo. (N. Dak. Ins. Rpt.). WISCONSIN - Adults appeared. (Wis. Coop. Sur.). ALABAMA - Numerous on cabbage in Lee County. (Guyton).

DIAMONDBACK MOTH (*Plutella maculipennis*) - ALABAMA - Heaviest infestation on cabbage in Lee County in 8-10 years. (Guyton).

HARLEQUIN BUG (*Murgantia histrionica*) - NORTH CAROLINA - First adult of season seen on mustard in Duplin County. (Farrier).

CABBAGE MAGGOT (*Hylemya brassicae*) - MASSACHUSETTS - Very heavy egg-laying a Waltham. (Crop Pest Cont. Mess.).

CABBAGE LOOPER (*Trichoplusia ni*) - NEW MEXICO - Larvae damaging lettuce in many fields of 4 counties. (N. Mex. Coop. Rpt.). WISCONSIN - Adults observed. (Wis. Coop. Sur.). CALIFORNIA - Medium on lettuce National City area and on cabbage in Encanto area. (Cal. Coop. Rpt.). ALABAMA - Large numbers on cabbage in Lee County. (Guyton).

CABBAGE APHID (*Brevicoryne brassicae*) - MARYLAND - Moderate to heavy numbers on cabbage north of Salisbury. Treatment needed. (U. Md., Ent. Dept.).

PEA APHID (*Macrosiphum pisi*) - DELAWARE - Small colonies starting on peas in eastern Sussex County. (MacCreary, Conrad). OREGON - Population below those observed in pea fields of Polk County in 1957. (Dickason).

MEXICAN BEAN BEETLE (*Epilachna varivestis*) - NORTH CAROLINA - One-third of leaves infested on untreated beans in Duplin County; 1 to 4 early instar larvae per leaf. (Farrier). GEORGIA - Moderate to heavy on beans in Screven, Thomas and Colquitt Counties. (Johnson).

BEAN LEAF BEETLE (*Cerotoma trifurcata*) - NORTH CAROLINA - Damaging beans in Pitt County. (Jones, Farrier).

CUCUMBER BEETLES (*Diabrotica* spp.) NEW MEXICO - Damaging lettuce in Valencia and Bernalillo Counties. Destroying melons near Los Lunas, Valencia County. (N. Mex. Coop. Rpt.).

STRIPED CUCUMBER BEETLE (*Acalymma vittata*) - NORTH CAROLINA - Destructive numbers of adults on cucumbers in Duplin County. (Farrier). IOWA - Abundant at lights. (Iowa Ins. Inf.). NEW MEXICO - *Acalymma* spp. damaging melons and cucumbers in De Baca County. (N. Mex. Coop. Rpt.).

TOMATO FRUITWORM (*Heliothis zea*) - NEW MEXICO - Continues to damage lettuce in Dona Ana County. (N. Mex. Coop. Rpt.).

ASPARAGUS BEETLES (*Crioceris* spp.) - MICHIGAN - *C. asparagi* and *C. duodecimpunctata* extremely numerous in Berrien-Van Buren area of southwestern Michigan. (Hutson). RHODE ISLAND - Adults on asparagus at Greenwich. (Hannah, May 13).

THRIPS - NEW MEXICO - Considerable damage to onions in Dona Ana County. (N. Mex. Coop. Rpt.).

ALFALFA LOOPER (*Autographa californica*)-CALIFORNIA - Medium on lettuce in National City area. (Cal. Coop. Rpt.). Heavy on lettuce in Salinas Valley, Monterey County. (Swift).

PAINTED LADY (*Vanessa cardui*) - CALIFORNIA - Medium to heavy on hop vines in Perkins area, Sacramento County. Control needed. (Cal. Coop. Rpt.). Damaging numbers on melons and lettuce in the Salinas Valley, Monterey County. (Swift).

BEET LEAFHOPPER (*Circulifer tenellus*) - UTAH - Common on weed hosts and sugar beets in Washington, Iron, Millard and Sevier Counties. Common on mustards and Russian-thistle in Emery, Carbon and Grand Counties. (Knowlton).

LYGUS BUGS - UTAH - Extremely numerous on sugar beet seed stocks in St. George-Washington area. (Knowlton).

ONION MAGGOT (*Hylemya antiqua*) - UTAH - Infesting onions in Weber County. (Knowlton). OREGON - Few adults at Labish or Ontario onion fields. No maggot damage observed as of May 15. (Crowell).

TWO-SPOTTED SPIDER MITE (*Tetranychus telarius*) - MASSACHUSETTS - Severe on strawberry planting. (Wheeler). CALIFORNIA - Medium on beans in Chula Vista area of San Diego County. (Cal. Coop. Rpt.).

STRAWBERRY LEAF ROLLER (*Ancylis comptana fragariae*) - WISCONSIN - Moderate numbers in Waushara County plantings. (Wis. Coop. Sur.).

STRAWBERRY APHID (*Pentatrichopus fragaefolii*) - OREGON - Unusually abundant in Multnomah strawberry fields. (Rosenstiel).

SPRINGTAILS - VIRGINIA - Tremendous numbers in strawberry, potato and sweet corn fields on Eastern Shore. (Hofmaster).

TOBACCO INSECTS

TOBACCO FLEA BEETLE (*Epitrix hirtipennis*) - VIRGINIA - Light to moderate damage to plants around tobacco plant beds in Pittsylvania County. (Dominick). Damaging tobacco in beds in Smyth County (Eller), and in other southwestern counties (Sinclair).

TOBACCO BUDWORM (*Heliothis virescens*) - GEORGIA - Light on tobacco in Tift and Emanuel Counties, moderate to heavy in 10 counties. (Johnson).

VEGETABLE WEEVIL (*Listroderes costirostris obliquus*) - MARYLAND - Destructive to tobacco in beds several locations in Calvert County. (U. Md., Ent. Dept.). NORTH CAROLINA - Injured new planting of tobacco in Wake County. (Upchurch, Young).

WIREWORMS - NORTH CAROLINA - Severely damaged tobacco fields in Wilson County, 30 to 75 percent of plants injured. (Guthrie).

COTTON INSECTS

BOLL WEEVIL (*Anthonomus grandis*) - NORTH CAROLINA - Overwintered adults in fields of cotton in 2-leaf stage, Scotland County. (Mistric). SOUTH CAROLINA - No adults in cotton fields, Florence and Darlington Counties. (Cott. Lett., May 14). GEORGIA - Average 2 adults per 100 feet of row, Colquitt and Thomas Counties, and one per 100 feet of row in Bacon, Pierce and Tattnall Counties. (Johnson). ALABAMA - Eight weevils collected from tanglefoot screens in seedling cotton fields, Autauga County. (Rawson). MISSISSIPPI-Survival in cages in Stoneville area .88%, highest in 3 years. (Merkl et al.). LOUISIANA - Populations averaged 7 per acre for 22 fields examined, with weevils being found in only 3 fields. Percentage survival in hibernation cages was 1.32 percent for May 7 and 1.98 for May 14 compared with 0.22 percent for both dates in 1957, Madison Parish. Excessive rainfall has apparently stimulated early emergence in cages, more weevils being taken on the first day than emerged during the 1957 season. (Smith et al.). Averaged 2 per 100 linear feet in 4 fields, Point Coupee Parish. (Roussell, Spink). TEXAS - Winter survival in hibernation cages at Waco was 4.42 percent, compared with 4.9 in 1957 to May 16. Weevils averaged 101 per acre in 14 fields inspected, McLennan and Falls Counties. (Parencia et al.).

Boll Weevil Winter Survival in McNairy and Lake Counties, Tennessee, 1958: - Tests were made in McNairy County to determine the overwintering population in western Tennessee for 1958. Fall trash examinations indicated an average of 2,365 weevils per acre, the highest number found since the counts were begun in 1951. Spring counts indicated about 21 percent winter survival or 498 weevils per acre compared with 239 for 1956. Wet weather prevented sampling of many fields that would probably cause the average to fall a great deal lower. All samples were taken in upland fields where highest carryover normally occurs. This count should be representative of all the southern tier of counties. Since the boll weevil is known to have hibernated as far north as Lake County during the mild winter of 1956, samples were collected also in that county this spring. No live weevils were recovered from 8 trash samples. Conditions for sampling were poor due to wet weather. (Locke).

BOLLWORM (*Heliothis zea*)-SOUTH CAROLINA - Twenty-eight moths taken in light trap at Florence. (Cott. Lett., May 14). NEW MEXICO - Eggs fairly abundant on cotton, Dona Ana County. (N. Mex. Coop. Rpt.). MISSISSIPPI - Few moths taken in light traps, no activity in cotton fields. (Merkl et al.).

PINK BOLLWORM (*Pectinophora gossypiella*) - OKLAHOMA - Examination of 3,998 bolls from standing stalks and 2,259 bolls from surface debris in 18 eastern counties revealed no dead or live larvae. The material examined came from a total of 1,375 acres. (Fed.-State PBW Comm.).

APHIDS - LOUISIANA - Populations very light in Madison Parish. (Smith et al.). NEW MEXICO - *Aphis medicaginis* building up in Dona Ana, Luna and Eddy Counties. *A. gossypii* still light in most fields in southern counties. (N. Mex. Coop. Rpt.). TEXAS - *A. gossypii* light in McLennan and Falls Counties. (Parencia et al.).

CABBAGE LOOPER (*Trichoplusia ni*) - NEW MEXICO - Light on cotton in Dona Ana County. (N. Mex. Coop. Rpt.).

FLEAHOPPERS - TEXAS - *Psallus seriatus* light to heavy in several fields, Bee, Ft. Bend and Brazoria Counties. (Prude, Cook). ARIZONA - Averaged 8 per 100 sweeps in Roll-Wellton area, Yuma County, and south Gila area, Maricopa County. (Roney).

GRASSHOPPERS - ARIZONA - Some cotton has been destroyed in Maricopa, Pima and Pinal Counties. Usually in fields adjoining desert and where no control was practiced until grasshoppers were almost full grown. (Ariz. Coop. Rpt.). NEW MEXICO - Doing some damage to plants along fence rows and ditch banks, Dona Ana County. (N. Mex. Coop. Rpt.).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Averaged 16 per 100 sweeps in Yuma area in stub cotton. (Roney).

THRIPS - ALABAMA - Causing light to moderate damage to young cotton in Autauga, Escambia and Conecuh Counties. (Rawson, Grimes). MISSISSIPPI - General over few old cotton fields which have not been plowed up and replanted in delta counties. No heavy infestations reported. (Merkl et al.). TEXAS - Some increase in infestation, being medium in 2 fields and light in 12, McLennan and Falls Counties. (Parencia et al.). Light to heavy in several fields in Bee, Ft. Bend and Brazoria Counties. (Prude, Cook). NEW MEXICO - Continue to build up, Dona Ana County. Heavy infestations curling young leaves. (N. Mex. Coop. Rpt.). ARIZONA - Injuring cotton in Marana area, Pima County, and present in some fields, Pinal and Maricopa Counties. (Ariz. Coop. Rpt.).

BROWN COTTON LEAFWORM (*Acontia dacia*) - LOUISIANA - One larva found in a field in Point Coupee Parish. (Angelle, Spink). TEXAS - Occasional larva in Waco area. (Parencia et al.).

ADDITIONAL NOTES

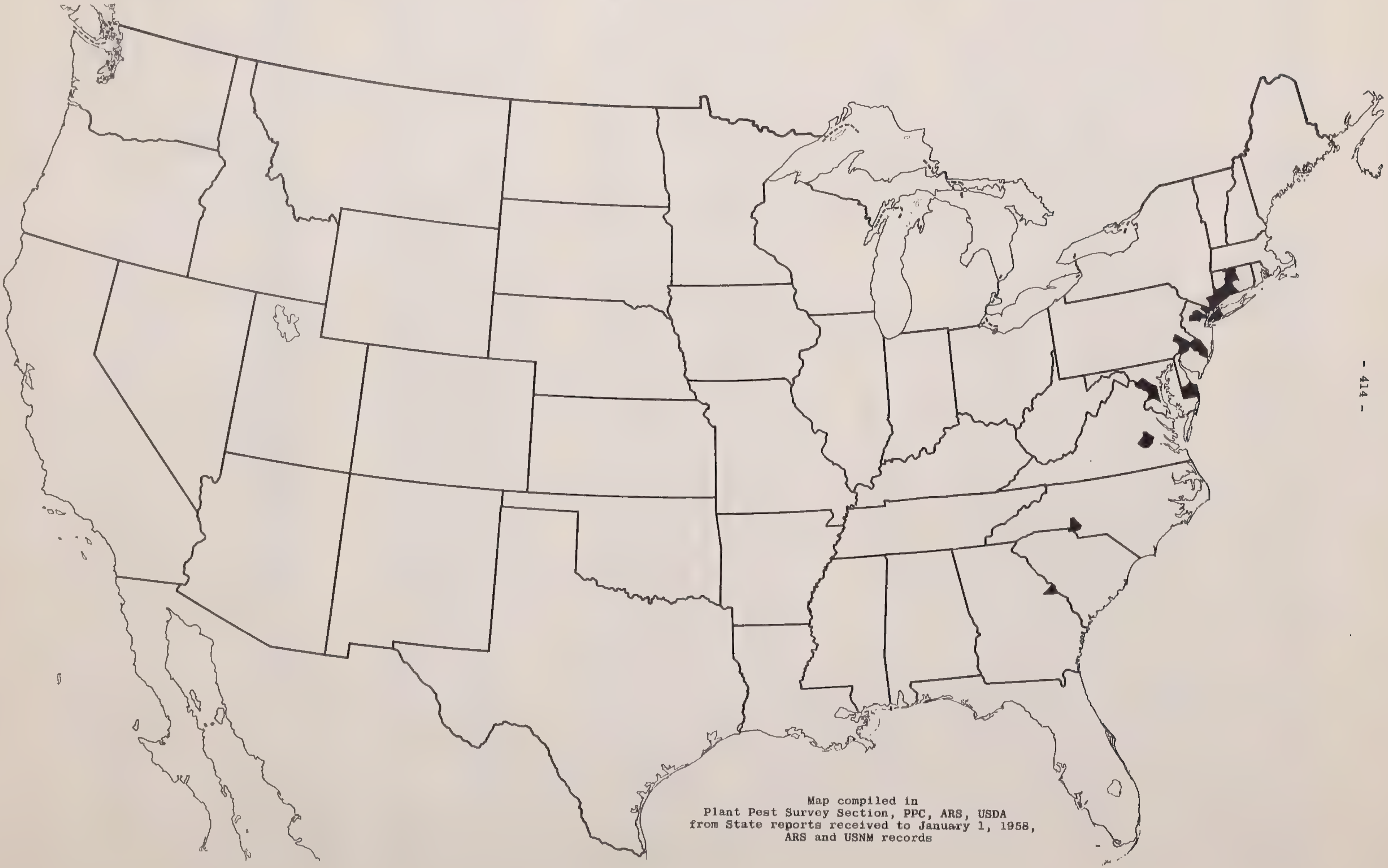
NEW YORK - EUROPEAN CORN BORER still mostly larvae. Some CUTWORM activity noted in Rockland County. FLEA BEETLES on tomato plants, Rockland County, and on cabbage, Erie County. CABBAGE MAGGOT eggs on cabbage and cauliflower May 13, Erie County. ASPARAGUS BEETLES feeding in Niagara County. BIRCH LEAF MINER larval activity and adult numbers indicate severe damage in Poughkeepsie area. ROSY APPLE APHID increasing rapidly as is APPLE APHID, which is also curling leaves and new growth on young trees in Rockland County. FRUIT TREE LEAF ROLLER feeding on raspberries and PLUM CURCULIO on sweet cherries in same county. RED-BANDED LEAF ROLLER egg masses generally below 1957 numbers, Orleans County, and nearly ready to hatch in Wayne County. (N. Y. Wkly. Rpt.).

NEBRASKA - First POTATO LEAFHOPPERS of season found May 5 in Otoe County, 4 per 4,000 sweeps. Red Willow County new county record for ALFALFA WEEVIL. SIX-SPOTTED LEAFHOPPER averaged 23 per 100 sweeps in Red Willow County alfalfa, and 14 per 100 sweeps in wheat in eastern third of State. PEA APHID ranged up to 700 per 100 sweeps in southeast areas and 200 in northeastern areas. ALFALFA CATERPILLAR continues to buildup in eastern portions of State. TARNISHED PLANT BUG remains static in the southeast and averages 65 per 100 sweeps in northeast. EUROPEAN CORN BORER pupation beginning in southeast.

ADDITIONAL SUMMARY NOTE

NEW YORK - 1957 - A BUD MITE (*Cecidophyes psilaspis*) caused bud blasting of *Taxus* in one nursery on Long Island. Distortion of foliage caused by this eriophyid mite was seen on estates in Nassau County. (Matthysse).

DISTRIBUTION OF A JAPANESE WEEVIL *(PSEUDOCNEORHINUS BIFASCIATUS)*



Map compiled in
Plant Pest Survey Section, PPC, ARS, USDA
from State reports received to January 1, 1958,
ARS and USNM records

FOREST, ORNAMENTAL AND SHADE TREE INSECTS

BARK BEETLES - OKLAHOMA - Scolytus multistriatus adults emerging May 12 in Stillwater area, Payne County. (Price). WISCONSIN - Hylurgopinus rufipes emerging in Sauk County May 12. (Wis. Coop. Sur.). CALIFORNIA - Dendroctonus pseudotsugae heavy on Douglas-firs in Boulder Creek area, Santa Cruz County. (Cal. Coop. Rpt.). MONTANA - Localized small groups of Douglas-fir attacked by D. pseudotsugae near Thompson Falls, Sanders County. Local outbreak of Ips sp. in 10-15 year-old ponderosa pine stands near Libby, Lincoln County. (Missoula For. Ins. Lab.).

BIRCH LEAF MINER (Fenusa pusilla) - NEW JERSEY - Very active in central areas. (Ins. Dis. Newsl.). MASSACHUSETTS - Adults first seen April 29. Many eggs laid May 9. (Wheeler).

PALES WEEVIL (Hylobius pales) - MARYLAND - Damage to white pines planted for Christmas trees, Harford County. (U. Md., Ent. Dept.). PENNSYLVANIA - Moderate on Scotch pine, Venango County. (Adams).

PINE BARK APHID (Pineus strobi) - PENNSYLVANIA - Very heavy on Scotch pines, Venango County. (Adams).

PINE NEEDLE SCALE (Phenacaspis pinifoliae) - IDAHO - Infestations on ponderosa pines from Ahsahka, Clearwater County, to Deary, Latah County. (Missoula For. Ins. Lab.). MONTANA - Infestations on ornamental spruce in Missoula, Missoula County. (Missoula For. Ins. Lab.).

SAWFLIES - NORTH CAROLINA - Neodiprion sp. causing severe defoliation of pines over large areas, Granville and Person Counties. (Green et al.). MINNESOTA - Some pupation of Diprion similis. (Minn. Ins. Rpt.). VIRGINIA - Neodiprion sp. present in large numbers on pines in parts of Cumberland and Buckingham Counties. (Ellis). Also heavy on pines in Fluvanna, Charlotte and Halifax Counties. (Rowell et al.). PENNSYLVANIA - Second and third instar Neodiprion sertifer on red and Scotch pine, Monroe County. Biological controls applied. (Drooz).

APHIDS - NEW JERSEY - Very abundant on birch causing considerable leaf distortion. (Ins. Dis. Newsl.). WISCONSIN - Populations on elm appear lighter than in 1957. Anuraphis viburnicola has caused distortion to snowball where treatment was not applied. (Wis. Coop. Sur.). NORTH DAKOTA - A. viburnicola heavy and causing severe leaf distortion on snowball in several eastern localities. (N. D. Ins. Rpt.). IDAHO - Developing on wide variety of ornamentals and shade trees throughout south central and southwestern areas. (Gittins).

BAGWORM (Thyridopteryx ephemeraeformis) - OKLAHOMA - Hatching in Stillwater area, Payne County. (Fenton).

CANKERWORMS - KANSAS - Most destructive infestations of Paleacrita vernata in 9 years causing heavy defoliation and damage to trees generally throughout eastern half of State. Many trees completely defoliated. Control effective where applied. (Matthew). IOWA - Generally not heavy enough to warrant control. (Iowa Ins. Inf.). MINNESOTA - Alsophila pometaria causing injury to elm and apple trees, St. Paul area. (Minn. Ins. Rpt.). MISSOURI - P. vernata common on elms and some ornamentals over western and central parts of State, but does not appear heavy enough to defoliate trees. (Kyd, Thomas).

ELM LEAF BEETLE (Galerucella xanthomelaena) - DELAWARE - Common and depositing eggs, southern Sussex County. (MacCreary, Conrad). LOUISIANA - Light on elms, Orleans Parish. (Spink).

TENT CATERPILLARS (Malacosoma spp.) - MASSACHUSETTS - M. americanum generally scarce throughout State. (Wheeler, May 9). LOUISIANA - M. disstria abundant on oaks, Orleans Parish. (Spink). WEST VIRGINIA - M. americanum has caused 70-95 percent defoliation of black cherry, statewide. (W. Va. Ins. Sur.).

A TORTRICID (Gypsonama haimbachiana) - ARKANSAS - On cottonwood in Poinsett County. This is the first record for this species in the State. (Dowell).

CORN EARWORM (Heliothis zea) - FLORIDA - Inspection of gladiolus in the field, Ft. Meyers area, Lee County, shows larvae working in the florets of the spikes to a heavy degree in some cases. (Fla. Coop. Sur., Apr. 9).

INSECTS AFFECTING MAN AND ANIMALS

HORN FLY (Siphona irritans) - KANSAS - Activity generally increased over State causing some bunching of cattle in central and southern counties. (Gates). MISSOURI - Range 75-225 per animal on untreated cattle in central area. (Kyd, Thomas). ALABAMA - Increasing. (Grimes).

LITTLE HOUSE FLY (Fannia canicularis) - MASSACHUSETTS - Very abundant in many poultry farms. (Wheeler, May 9).

MOSQUITOES - KANSAS - Culiseta inornata adults and larvae present, Riley County. (Matthew). NORTH CAROLINA - Aedes sollicitans increasing rapidly in Pamlico and Carteret Counties. (Usry). IDAHO - Aedes implicatus populations far below levels of previous few years. (Barr).

TICKS - MASSACHUSETTS - Dermacentor variabilis now common. (Wheeler, May 9). VIRGINIA - Amblyomma americanum taken from human in Richmond. This species is not common in this part of the country. (Matheny).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - MASSACHUSETTS - Building up well in spite of late season and rainy weather. Colonies preparing to swarm. (Wheeler, May 9). WISCONSIN - Colonies overwintered with all-time minimum losses. Spring populations were high but frosts limited gathering of stores and populations have declined, with many colonies starved. (Wis. Coop. Sur.). CALIFORNIA - Check of 20 colonies slow to develop normal spring populations revealed 19 infected with Nosema, with 14-30 percent of bees infected. (Cal. Coop. Rpt.).

PREDATORS AND PARASITES - ARKANSAS - Lady beetles, green lacewings and braconids have built up. (Boyer). ILLINOIS - Lady beetles per 100 sweeps averaged 34 adults and 6 larvae in southwest, 13 adults in west southwest and 14 adults and 5 larvae in northern areas. (Ill. Ins. Rpt.). OKLAHOMA - Lady beetle and lacewing larvae exceedingly abundant in small grain and alfalfa throughout State. Have substantially reduced aphid populations in many areas. (Coppock). NEW MEXICO - Praon palitans becoming very abundant in established alfalfa stands throughout Dona Ana County. (N. Mex. Coop. Rpt.).

MISCELLANEOUS INSECTS

TERMITES - MASSACHUSETTS - Continue to increase in importance. (Wheeler, May 9).

CORRECTIONS

CEIR 8(18):341 - PLUM CURCULIO - GEORGIA - Change "Some adults full size,---" to read "Some eggs full size,---".

CEIR 8(19):364 Add Yakima and Benton Counties, Washington, to DISTRIBUTION OF ARMY CUTWORM.

CEIR 8(20):393 under mosquitoes in Minnesota delete *A. dorsalis*.

CEIR 8(20):379 - ARMYWORM - LOUISIANA - infestation on corn should read FALL ARMYWORM.

LIGHT TRAP COLLECTIONS

	Pseud. unip.	Agrot. yps.	Felt. subt.	Eueth. rugic.	Perid. marg.	Prod. ornith.	Heliothis zea	Heliothis vires.
ALABAMA (County)								
Lee 5/11-16	9	24		133			71	
ARKANSAS								
Fayetteville 5/1-7	1	5						
Kelso 5/1-7	12	5			1		6	
Stuttgart 5/1-7	10	4		1	5			
ILLINOIS								
Urbana 5/9-15	302	10			7			
INDIANA (Counties)								
Orange 5/6-10	407	22			14	1		
Tippecanoe 5/9-15	90	35				21		
KANSAS								
Garden City 5/7-11	290	27						
Hays 5/4-5,7	464	9						
Manhattan 5/7-15	877	37						
Wathena 5/5-13	431	15						
LOUISIANA								
Baton Rouge 5/9-15	26	58	35	10	34	5	5	
Franklin 5/8-14	1	2	3	1	10	1		
MARYLAND								
Fairland 5/8-15	25				3			
MISSISSIPPI								
Grenada 5/5-10	4	1						
Meridian 5/9		1						
Senatobia 5/2-9	5						2	
State College 5/10-16	12	3	4				1	
*Stoneville 5/10-16	146	87	5		53	51	19	2
MISSOURI								
Columbia 5/15-16	102	2			3			
NEBRASKA								
Alliance 4/30-5/5					8			
Kearney 4/21-5/8	1				15			
Lincoln 5/3-10	49	58					3	
North Platte 5/5-11	164	16			208		2	

LIGHT TRAP COLLECTIONS - Continued

	Pseud. unip.	Agrot. yps.	Felt. subt.	Eueth. rugic.	Period. marg.	Prod. ornith.	Heliothis zea	vires.
NEBRASKA (Cont.)								
Scotts Bluff Exp. Sta. 5/6-12		1			28			
NORTH CAROLINA								
Faison 5/8-14								1
NORTH DAKOTA								
Fargo 5/6-12	12				5			
SOUTH CAROLINA								
Charleston 5/12-18	1	2	2		2		2	
Clemson 5/10-16	41	4	2			2	8	
Florence 5/11-17	5	7	3	22			46	
SOUTH DAKOTA								
Brookings 5/12,16	1176	32						
TENNESSEE (Counties)								
Blount 5/6-12	352	37			8	9		
Cumberland	106	17			11			
Greene	85	8			2			
Johnson	271	285			26	3		
Madison	30	3			2			
Maury	153	13			9	4		
Robertson	52	4				2		
TEXAS								
Brownsville 5/10-16		6	22		20		11	7
Waco 5/10-16	67		68		231	132	27	

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*Four traps Stoneville

Submission of Light Trap Material for Identification

The time and effort put forth by all individuals involved in handling and determining trap-collected insects should be directed toward the long range utilization of the specimens, thus eliminating the need for constantly repeating the procedure. Specimens should be properly pinned and spread to permit easy determination by the taxonomists and determined specimens should be returned to the sender for future reference when screening trap collections. This will eliminate the need for further submissions except in rare cases.

Material forwarded to Dr. Paul Oman, Insect Identification & Parasite Introduction Laboratories, ENT/ARS, Plant Industry Station, Beltsville, Maryland, should be properly prepared, i.e., spread, pinned and labeled. Taxonomists do not have the time to prepare specimens. Fresh, correctly prepared specimens are easier to identify, especially when hindwing venation is involved. Individual specimens in a mixed series should be numbered so that determinations can be properly reported. All light trap collections should be carefully screened to eliminate all except suspect material. By the use of determined specimens for comparison the number of submissions can be greatly reduced. Only through the cooperation of everyone concerned can the problems connected with light trap collections be solved and permit their continued use as one important facet in the program of insect survey and detection.

A STATUS REPORT ON FOREST INSECT CONDITIONS IN 1957 [1]

Compiled by
Division of Forest Insect Research

STATUS IN BRIEF

There was a marked increase in the severity and extent of forest insect infestations in the United States during 1957. The increased activity was most pronounced in the coniferous forests of the West but epidemic infestations also occurred in the Northeast, the Lake States, and the South. To the extent possible, epidemic populations of the pest species were suppressed by Federal, State, and private land-owners and land-managers in a concerted effort to reduce tree-damage and tree-killing in affected areas. Although the intensity of infestation of a few major pest species were reduced by control action, and some others declined as a result of natural control factors, other species which heretofore had been quiescent erupted to outbreak proportions.

CONDITIONS IN OREGON AND WASHINGTON

The extent and severity of infestations in Oregon and Washington increased in 1957 after three years of successive decline and thirteen species of destructive pests occurred as outbreaks on a total of 2,129,440 acres. Infestations of the balsam woolly aphid, *Chermes piceae* (Ratz.), the Engelmann spruce beetle, *Dendroctonus engelmanni* Hopk., the larch bud moth, *Zeiraphera griseana* (Hubner), the spruce budworm, *Choristoneura fumiferana* (Clem.), and the western pine beetle, *D. brevicomis* Lec. increased in severity and extent, and the black-headed budworm, *Acleris variana* (Fern.), two species of silver fir beetles, *Pseudohylesinus* spp. and the spruce bud moth, *Zeiraphera ratzeburgiana* Sax. reappeared in outbreak proportions in several areas.

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[1] This report is a compilation of information on the status of forest insects submitted by the Forest Experiment Stations, the Federal land-managing agencies, state forestry and conservation organizations, lumber companies, timber operators, private land-owners, and other individuals.

CONDITIONS IN CALIFORNIA

In California, destructive insects also showed a marked increase in extent and severity. Critical epidemics of western pine beetle, *Dendroctonus brevicomis* Lec., and mountain pine beetle, *D. monticolae* Hopk., occurred state-wide, particularly in proximity to areas which had been burned in 1955. The Jeffrey pine beetle, *D. jeffreyi* Hopk., occurred in outbreak numbers in several places and the lodgepole needle-miner, *Recurvaria milleri* Busck , persisted at epidemic levels in the lodgepole pine stands at Yosemite National Park. The California flat-headed borer, *Melanophila californica* Van Dyke, continued to cause severe tree-killing in the southern part of the State and the trend of infestations by the Douglas-fir beetle, *D. pseudotsugae* (Hopk.) was upward in northwestern California. The red turpentine beetle, *D. valens* Lec., was unusually abundant in association with other bark beetles which had attacked and killed ponderosa and sugar pines, and several species of cone and seed insects were particularly destructive to the coniferous cone crop. Several other species of miscellaneous insects caused serious damage to the forest resources in many areas.

CONDITIONS IN THE ROCKY MOUNTAINS

The coniferous forests in the northern and southern Rocky Mountains were severely affected by several species of destructive bark beetles and tree defoliators. Bark beetles, such as the mountain pine beetle, *Dendroctonus monticolae* Hopk., the Black Hills beetle, *D. ponderosae* Hopk., and the Engelmann spruce beetle, *D. engelmanni* Hopk., caused severe tree-killing in some stands and fir engraver beetles, including *Scolytus* and *Dryocoetes* spp., as well as D. *pseudotsugae* (Hopk.) occurred in outbreak status in several of the fir forests in the Region. The spruce budworm, *Choristoneura fumiferana* (Clem.), was abundant over extensive areas in Montana and in parts of Idaho and several other defoliators, including such species as *Epinotia meritana* Hein., *Acleria variana* (Fern.), *Semiothisa sexmaculata* (Pack.), *Anoplonyx occidens*, Roh., and others, were epidemic in many places. Of particular importance was the occurrence of an extensive infestation of spruce spider mite, *Oligonychus ununguis* (Jac.) on some 800,000 acres of fir forests in Montana and southern Idaho. This forest pest occurred in epidemic status principally within the areas which had been sprayed with a formulated DDT insecticide for control of the spruce budworm in 1956.

CONDITIONS IN LAKE STATES, CENTRAL STATES AND NORTHEAST

An increase in scope and severity of several important insects occurred in the Central States, the Lake States and the Northeast. The spruce budworm, *Choristoneura fumiferana* (Clem.), developed to epidemic proportions on some 300,000 acres in Maine and approximately 666,000 acres of susceptible forest type was heavily defoliated in Minnesota. Populations of Jack-pine budworm, C. pinus Free. declined in most of the Lake States region and there was little evidence of severe defoliation by the forest tent caterpillar, Malacosoma disstria Hbn. The European pine shoot moth, Rhyacionia buoliana (Schiff.) increased in severity in the Lake States and Central States territory and the white-pine weevil, Pissodes strobi (Peck) continued to cause severe damage to white pine and Jack pine in many areas throughout the regions.

CONDITIONS IN SOUTHERN AND SOUTHEASTERN STATES

Most of the important forest insects in the southern and southeastern states were less destructive during 1957 than has been the case for the past several years. Large-scale control projects and low temperatures during December reduced infestations of southern pine beetle, Dendroctonus frontalis Zimm., and increased precipitation benefiting tree-vigor resulted in less damage caused by the Ips engraver beetles and the black turpentine beetle, D. terebrans Oliv. A few defoliating insects occurred in epidemic status in some areas but severe tree-killing did not occur.

CONDITIONS IN ALASKA

Forest insect activity in most areas in Alaska was at a low level. The infestation of hemlock sawfly, Neodiprion tsugae Midd. which occurred in outbreak proportions in scattered locations in 1956 subsided completely and the Ips interpunctus Eichh. outbreak in white spruce north of Fort Yukon declined sharply. An undetermined defoliator caused moderate damage to birch stands in the vicinity of Fairbanks and localized flare-ups of the Alaska spruce beetle, Dendroctonus borealis Hopk. occurred in white spruce on the Kenai Peninsula. The sitka spruce beetle, D. obesus (Mann), was evident only at scattered points in the vicinity of Prince William Sound.

STATUS OF MAJOR INSECT PESTS

MOUNTAIN PINE BEETLE, Dendroctonus monticolae Hopk. The Mountain pine beetle is a serious pest of several species of pines in the western United States and outbreaks of severe proportions were reported from many areas during the year. The scope and severity of infestations was greatest in the lodgepole pine forests in the Intermountain States, in the Northern Rockies, and the Pacific Northwest.

Outbreaks which resulted in the killing of large groups of lodgepole pines were particularly prevalent throughout the Intermountain States, and infestations of severe proportions were reported from the Grand Teton National Park, and on or adjacent to the Teton, Sawtooth, Ashley and Targhee National Forests in Idaho. In Utah, an extensive infestation occurs on the Wasatch National Forest and systematic surveys in this area has revealed that approximately 123,000 infested trees occur on less than 100,000 acres. Outbreaks were also reported on the Ashley National Forest in Utah and in seven new infestation centers, group killings range between 50 and 7,000 trees at each location. In Montana, one outbreak of serious proportions was reported at Glacier National Park. There were 122 separate infestation centers recorded in Oregon and Washington with heaviest concentrations of losses on the Deschutes National Forest and the Klamath Indian Reservation. Epidemic centers on a portion of the Shoshone National Forest in Wyoming continued despite concerted efforts made during the year to reduce infestations by direct means. The high level of losses also continued in the Delaney and Dingley Creek drainages at Yosemite National Park in California due in part, at least, to stand weakening as a result of tree defoliation by the lodgepole needleminer, Recurvaria milleri Busck.

The five-needle pines, namely sugar pine and western white pine also were severely affected by the mountain pine beetle in several of the western states. In California, losses in mature sugar pine increased statewide with centers of infestations in proximity to forested areas on the Sequoia, Klamath, Stanislaus, and Plumas National Forests which were accidentally burned in disastrous fires during 1955. In Oregon, one center of infestation was reported on the Rogue River National Forest. Stands of western white pine were severely damaged on the Gifford Pinchot National Forest in Washington and infestations there covered a total of 55,840 acres. Some 24,320 acres were affected on the Willamette National Forest in Oregon and the beetle was found to be active on three separate areas on the Clearwater National Forest in Idaho.

The killing of ponderosa pine was not reported from extensive areas although the acute infestation on 4,000 acres at Crystal Bay, Nevada is active and poses a threat to the high value recreational and summer-home areas at the north end of Lake Tahoe. Another infestation on some 3,360 acres where moderate to heavy tree mortality occurred, was reported on and adjacent to the Malheur National Forest in Oregon.

WESTERN PINE BEETLE, Dendroctonus brevicomis Lec. - The western pine beetle, long recognized as the most important natural enemy of ponderosa pine in the western United States, has been endemic in all stands for the past several years. During 1957, however, it was noticed that populations were on the increase and serious tree-killing occurred at several places in the Pacific Coast states. In California, tree-killing was severe on portions of the Sierra, Sequoia, Plumas, Stanislaus, Tahoe, Mendocino and Klamath National Forests as well as at Sequoia-Kings Canyon and Yosemite National Park. Two particularly serious epidemics occurred in the vicinity of areas which had been burned during 1955. These outbreak areas, encompassing some 173,000 acres, suffered losses of several thousands of trees and required emergency programming for control. Severity of infestations also increased in Oregon and Washington and damage occurred to pine stands on an estimated 41,760 acres. Heaviest tree-killing was found on the Fremont National Forest and the Warm Springs Indian Reservation in Oregon, and on the Okanogan National Forest in Washington. These latter infestations were not precipitated by populations arising from damaged timber in burned areas. Low endemic populations and relatively little tree-killing was the rule throughout the remainder of the range of this insect in the Intermountain and northern Rocky Mountain states.

DOUGLAS-FIR BEETLE, Dendroctonus pseudotsugae Hopk. - With minor exceptions, infestations of Douglas-fir beetle have declined to low endemic levels in all of the extensive fir forests of the western states. In Oregon and Washington, outbreak conditions currently were reported on a gross area of 18,400 acres, down from a peak of over 5,000,000 acres infested in 1954. One small outbreak on the Colville Indian Reservation in Washington covered 7,000 acres and two smaller infestations were reported from western Oregon. In California, the rate of losses were reported at a very low level except for local areas on the Klamath and Six Rivers National Forests in proximity to previous epidemics.

In the Northern and Southern Rockies, and elsewhere in the Intermountain States, outbreak conditions were reported from only a few areas. In southern Utah, where the fir type occurs in patches, all of the stands were heavily infested. Other outbreaks were noted in the Yellowstone River Canyon in Yellowstone National Park, and in a few places on the Boise and Sawtooth National Forests in Idaho. In the Southwest, where stands have been subjected to deficiencies in annual precipitation for the past several years, the rate of decline in infestations was less noticeable. It is estimated, for example that some 96 million board feet of timber was killed by the bark beetles on some 820,000 acres in parts of Arizona and New Mexico with concentrations of tree-killing most pronounced on portions of the Gila and Santa Fe National Forests, and on the Jicarilla Apache Indian Reservation. A similar situation was reported on the San Juan, Grand Mesa-Uncompahgre, Rio Grande, and San Isabel National Forests in southern Colorado.

ENGELMANN SPRUCE BEETLE, *Dendroctonus engelmanni* Hopk. - This tree-killing bark beetle which was epidemic over extensive forested areas in the northern and southern Rocky Mountains only a few years ago has declined to endemic levels in most areas. Infestations in Colorado, New Mexico, Idaho and Montana are active in only a few local areas, and none of them are of sufficient size to require more than limited action in suppressive measures for their control. An outbreak first discovered in 1955 on the Bridger National Forest in Utah, however, is still aggressive. The infestation covers a gross area of 24,000 acres and it is estimated that as many as 37,000 trees and stumps are infested. Suppressive measures in this latter area have been initiated for control and mop-up operations are being continued in the infested areas in Montana, Idaho, and Colorado.

JEFFREY PINE BEETLE, *Dendroctonus jeffreyi* Hopk. - This insect pest is not known to attack any host other than Jeffrey pine, hence its occurrence is restricted to the limited range of this tree species in California. The periodicity of outbreaks of the insect is unpredictable and in spite of relatively light populations during the past several years, epidemics were recorded on some 105,000 acres in 1957. Centers of infestations occurred on the Plumas, Sierra and Inyo National Forests in central California and to a lesser degree in the southern portion of the State.

BLACK HILLS BEETLE, *Dendroctonus ponderosae* Hopk. - The Black Hills beetle, one of the most important insect pests affecting ponderosa pine in the Rocky Mountains and the Black Hills, was reported in epidemic status at several locations. The outbreak on the Dixie National Forest and at Bryce Canyon National Park in southern Utah is now in its eighth year and despite logging and direct chemical treatment of infested trees, epidemic centers of infestations continue to develop in adjacent stands. Infestations are reported to have increased also on the Carson National Forest in northern New Mexico; on the Pike, Roosevelt and San Isabel National Forests in southern Colorado; and to some degree in the Black Hills of South Dakota. Artificial measures for control are planned in all of these outbreak areas.

SOUTHWESTERN PINE BEETLE, *Dendroctonus barberi* Hopk. - This insect, usually found in association with other bark beetle species in the ponderosa pine stands of the Southwest, was quite prevalent over large areas in parts of New Mexico, Arizona and southern Nevada during 1957. A complex of species, including *D. barberi* Hopk., *D. approximatus*, Dietz., *Ips lecontei* Sw. and *Ips ponderosae* Sw. were associated in recently killed pines on some 1,711,000 acres in Arizona and New Mexico. The initial attack on trees usually was by *I. lecontei* Sw. followed by *D. barberi* Hopk. in the basal portion of the stem. *D. approximatus* Dietz, and *I. ponderosae* Sw. occurred occasionally in conjunction with the other species. An infestation of *D. barberi* Hopk. without the associated species continued in epidemic status at Charleston Mountain in Nevada and in this area, concerted efforts are being made to reduce the high rate of tree-killing by spraying infested trees with toxic oils. *D. convexifrons* Hopk. occurred in outbreak status in a limited area on Mt. Graham, southwest of Safford, Arizona. It was not abundant, however, in any other area.

SITKA SPRUCE BEETLE, *Dendroctonus obesus* (Mann.) - The Sitka spruce beetle has been prevalent in white spruce stands at several locations in Alaska for the past several years but currently the insect is reported to be confined to relatively small areas on Prince William Sound. The largest of the infestations now known is at Blackstone Bay near Whittier but this situation is not viewed with alarm as populations appear to be on a downward trend.

ALASKA SPRUCE BEETLE, *Dendroctonus borealis* Hopk. - The rate of tree-killing in stands of white spruce caused by this insect pest changed little from conditions which have existed in Alaska during the past several years. Scattered group losses were reported again on the Kenai Peninsula and south of the Alaska Range but the rate of tree-killing is not excessive.

SILVER FIR BEETLES, *Pseudohylesinus* spp. - The *Pseudohylesinus* beetles which were auite destructive to stands of Pacific silver fir in Oregon and Washington during the years 1947-1954, declined in mmbers abruptly in 1955 and practically disappeared during 1956. However, these destructive pests were reported again in 1957, at five separate infestation centers on the Mt. Baker and Snoqualmie National Forests in Washington, indicating a possible resurgence of damaging populations.

WESTERN BALSAM BARK BEETLE, *Dryocoetes confusus* Sw. - The status of this insect changed very little during the year and epidemic infestations were reported only on the Carson and Santa Fe National Forests in northern New Mexico and within the Roaring River drainage on the Boise National Forest in Idaho. In southern Utah, and elsewhere in the Intermountain states, intensity and scope of infestations appear to have decreased.

BLACK TURPENTINE BEETLE, *Dendroctonus terebrans* Oliv. - The severity of losses caused by the black turpentine beetle in pine stands of the southern and southeastern states was somewhat less in 1957 than during previous years. Infestations which have required suppressive measures for control in Georgia and Florida were reported to be endemic and only scattered tree-killing occurred elsewhere in the two states. Two small outbreak areas were noted in North Carolina but chemical treatment of infested trees controlled them. In the southern states, many of the pine tracts on flooded sites, in some cutting areas, and in stands damaged by wildfires, were attacked but prompt control in all areas reduced populations to low endemic levels.

SOUTHERN PINE BEETLE, Dendroctonus frontalis Zimm. The rate of tree-killing caused by the southern pine beetle in all of the southern and southeastern states currently was somewhat less than has been the case for the past several years. In the Southeast, beetle activity appeared to be centered in an 8,000 square mile area in western North Carolina, eastern Tennessee, northeastern Georgia and northwestern South Carolina. Light infestations, however, were reported along the South Carolina coast and in central and eastern Virginia. For the first time in possibly 40 years, the insect was discovered in portions of Louisiana and new infestations of minor proportions occurred in east Texas, the first recurrence in that area since the last major outbreak terminated in 1951. Elsewhere in the South, tree-killing was at or below levels of prior years. It is of interest that low temperatures during the winter months killed a large percentage of the beetle broods throughout the Appalachian Mountains and this, combined with concerted efforts to suppress populations by direct means during the course of the year, may result in a termination of the long-standing epidemic in this area. Prompt action, of course was taken to suppress the new infestations in Louisiana and east Texas, and maintenance control is being continued where the beetle is active in Mississippi and Alabama.

FIR ENGRAVER, Scolytus ventralis Lec. - The true fir stands in several of the western states were severely affected in 1957 by this scolytid beetle. The long-standing outbreak in stands of white fir on the Sandia Mountains east of Albuquerque, New Mexico continued at or above the level occurring in prior years and it is estimated that some 7,900 trees were killed during the year. Considerable tree-killing also occurred in southern Utah on and near Bryce Canyon National Park in stands of white fir weakened as a result of defoliation by Epinotia meritana Hein. Infestations covering 21,800 acres occurred in the alpine fir type in the Cascade Range in Oregon and on smaller areas in red and white fir stands on the Stanislaus and Sequoia National Forests in California.

PINE ENGRAVER BEETLES, Ips spp. - The extent and severity of tree-killing caused by the several species of pine engraver beetles in the various sections of the country is unpredictable from year to year due to wide fluctuations in populations resulting from changes in climatic conditions affecting broods and vigor of host trees. Damage to pine stands in

California was reported at a low level except for localized outbreaks of I. confusus Lec. and I. oregoni (Eichh.) at low elevations in the northern Sierras and in parts of southern California. The latter species also was reported in outbreak status on some 28,000 acres in the Blue Mountains of Oregon, and on portions of the Rogue River and Mt. Hood National Forests, but these infestations are much reduced from conditions which occurred last year.

In the Southwest, two Ips species, I. lecontei Sw., and I. ponderosae Hopk. were found in association with one or more Dendroctonus beetles in recently killed ponderosa pine on about 1 3/4 million acres. In most instances, I. lecontei Sw. was found to have initiated attack in the top portion of the trees and this discovery indicates the species to be of primary, rather than secondary importance in the losses sustained in the pine stands of Arizona and New Mexico. The insect also was found attacking and killing pinyon pines over extensive areas in Arizona, New Mexico, southern Utah, and western Nevada, another indication that the insect is a primary forest pest.

The widespread infestations of I. interpunctus Eichh. which caused heavy losses in stands of white spruce in Alaska in recent years was reported to have subsided during 1957 and it is expected that only light scattered infestations will be found during 1958.

In the Southeast, outbreaks of I. calligraphus Germ., I. grandicollis Eichh., and I. avulsus Eichh., were extensive and very destructive in the east-central portions of Virginia and North Carolina, and in northeastern South Carolina during the summer months but adverse factors of one type or another caused the infestations to collapse suddenly in late August and early September. The severe 1956 outbreaks of these latter species in east Texas, Oklahoma, and Arkansas also declined abruptly in 1957. Heavy rains in these areas during the spring months presumably increased the vigor of the host trees and made them less vulnerable to attack. Whatever the reason, by midyear, Ips populations in the southern states appeared to be confined to trees struck by lightning, or those severely weakened by other causes. In southern Ohio and central Missouri, Ips beetles were reported in several red pine plantations of from 5 to 100 acres in size.

PINE REPRODUCTION WEEVILS, Hylobius, Pachylobius, Pissodes, and Cylindrocoptorus spp. Several species of weevils which are destructive to young pines in plantations and in natural stands were abundant during the year. The white-pine weevil, Pissodes strobi (Peck), was prevalent again in white-pine in most of the New England and Northeastern states and high percentages of planted pines were attacked in many areas. The insect also was abundant on jack, red, Scotch and Austrian pine in the Lake States. In the latter areas, as much as 40 percent of the trees in some plantations were attacked and infestations on red pines were reported as severe in several areas in Michigan and Wisconsin. The pales weevil Hylobius pales (Hbst.), and the pitch-eating weevil, Pachylobius picivorus Germ., which have been pests of areas newly planted to pines in the southern states were less of a problem. Damage by these insects can be avoided if 6 to 9 months are allowed to lapse between the time of harvest cuttings and new plantings. Cylindrocoptorus eatoni Buch. continued to cause serious damage to ponderosa and Jeffrey pines in plantations in California and a new center of infestation in that state was detected in an out-planting of hybrid pines on the El Dorado National Forest. An outbreak covering some 400 acres of plantations on the Shasta-Trinity National Forest was controlled during the year by aerial application of DDT.

PINE ROOT-COLLAR WEEVIL, Hylobius radicis Buch. Heavy damage to plantations and natural stands of red pine caused by the pine root-collar weevil was reported in various parts of the Lake States region. Damage was severe to red and Scotch pines planted as windbreaks and shelterbelts in parts of Minnesota and Michigan and in the sandy soil types in northwestern and central Wisconsin.

CALIFORNIA FLATHEADED BORER, Melanophila californica Van Dyke. - This buprestid beetle, a major pest of ponderosa and Jeffrey pine in California, occurred in epidemic proportions at Mt. Laguna on the Cleveland National Forest. On some 7,500 acres in this area, it is estimated that about 2.5 percent of the green stand or approximately 13,000 trees were killed.

CONE AND SEED INSECTS. Insects which attack and destroy the cones and seeds of coniferous trees were reported as serious pests in many sections of the country. In California, where the seed crop was relatively light during 1957, several species caused serious damage. The sugar pine cone beetle, Conophthorus lambertianae Hopk. destroyed an estimated 90 percent of the sugar pine cones; pine seed worms reduced the seed crop of Jeffrey pine seed cones by about 75 percent; and the cones and seeds of ponderosa pine and Douglas-fir were practically wiped out by one or more pest species. Cone moths, Dioryctria spp. and Barbara spp. also were abundant and in conjunction with Megastigmus spp. were destructive statewide. Heavy infestations of Conophthorus beetles were reported affecting cones of red pine in Cass County, Minnesota and slash pine cones in Florida were found to be heavily attacked by Dioryctria moths.

SPRUCE MITE, Oligonychus ununguis (Jac.) A new situation which developed during 1957 was the occurrence of severe infestations of spruce mites in the fir forests of Montana and southern Idaho which had been sprayed with DDT in 1956 for control of spruce budworm, Choristoneura fumiferana (Clem.). Although a few lesser infestations were noted outside sprayed areas, heavy mite populations and tree damage coincided closely with the sprayed areas. The damage in southern Idaho occurred on some 23,300 acres and approximately 790,000 acres were severely affected in Montana. It is of interest that these mite infestations are the first to have occurred in epidemic proportions in the coniferous forests anywhere in the Nation subsequent to aerial application of DDT sprays for control of tree defoliators.

BALSAM WOOLLY APHID, *Chermes piceae* (Ratz.) The severity and extent of infestations by this destructive insect pest continued to increase in the fir stands of the Pacific Northwest. First noted in epidemic proprtions on Pacific silver fir and subalpine fir in 1954, infestations increased rapidly from some 295,000 acres in 1955 to 599,000 acres in 1957. The largest increase occurred on the Willamette National Forest in Oregon where spread during the year was estimated at 233,000 acres. Heavy tree-killing of severely attacked trees was conspicuous in all epidemic centers and salvage logging has been stepped-up to the extent practicable and feasible in an effort to utilize the dead and dying material prior to its deterioration. Research on the aphid was given high priority in 1957 and an important start was made to investigate the possibilities of biological control by importing a predaceous fly, *Aphidoletes thomsoni* Mohn., from Europe.

A new infestation, believed to be of recent origin, was discovered on Frazier fir on Mt. Mitchell in North Carolina but its severity and extent is not yet known. Infested trees, however, appear covered with a white, woolly substance, indicating heavy populations unaffected by natural enemies. Status of the woolly aphid in the northeastern states was little changed from conditions of prior years.

SPRUCE BUDWORM, *Choristoneura fumiferana* (Clem.) - This destructive insect, distributed throughout the range of susceptible host type in the United States, occurred in epidemic status on several million acres in many parts of the country. In Maine, infestations were found on a total of 2,289,000 acres of which 270,000 acres sustained heavy defoliation and 707,000 acres medium defoliation. While the intensity of the infestation on these 979,000 acres constituted a considerable increase over prior years, the over-all extent of the outbreak decreased due to a lower level of populations in the lightly infested areas of 1956. Because of an expected high population and severe tree damage in Aroostook County, and the unlikely prospects that natural factors will exert a controlling influence on the population, aerial application of DDT insecticide on some 300,000 acres is planned for 1958. Infestations in Minnesota also increased and approximately 660,000 acres of balsam fir were moderately to heavily defoliated. The stands of spruce and fir in much of this area now have suffered from two or more years of heavy larval feeding and it is expected that serious defoliation will occur again in 1958. Budworm populations remained at relatively low levels in Michigan but heavy defoliation was reported in northwestern Wisconsin for the first time in many years.

The spruce budworm has been epidemic in portions of north Idaho and in Montana for the past 10 years and despite aerial spraying for control on more than 2,000,000 acres since 1953, it is estimated that infestations still occur on some 2,846,000 acres. Damage being caused to the fir stands throughout the areas of infestation has been severe and many of the younger understory trees have been killed. There is little evidence to date of any major change in population densities and it can be expected that the infestation will continue in epidemic status during 1958.

In southern Idaho, 512,300 acres were defoliated on portions of Boise, Challis, Payette, Sawtooth, and Salmon National Forests. In New Mexico, the 154,950 acres which are affected represent a decline from conditions which existed in that state the previous year. In Arizona, increased populations at high elevations on the Kaibab National Forest and at Grand Canyon National Park has resulted in severe defoliation and plans have been made to spray some 90,000 acres in that area for control during 1958.

The epidemic that began in Oregon and Washington in 1944 is still in progress and after two years of an apparent decline in intensity, is once again on the increase. Currently, some 830,960 acres are infested on or adjacent to the Malheur, Ochoco, Umatilla and Wallowa-Whitman National Forests in the Blue Mountain region of Oregon and plans have been made to spray this area for control during 1958.

JACK-PINE BUDWORM, Choristoneura pinus Free. - This important insect pest which has occurred in epidemic numbers over relatively large areas in the Lake States region during the past several years declined in all areas in 1957. Infestations in Minnesota disappeared completely in most areas and those in Wisconsin were much reduced from levels of the past few years. A few areas of light defoliation were reported from the Upper Peninsula of Michigan and some stands in the Lower Peninsula were infested to a moderate degree. Adverse weather and a high degree of parasitism are credited as factors causing the decline of the budworm populations.

BLACKHEADED BUDWORM, Acleris variana (Fern.) For the first time in more than a decade, this destructive insect pest occurred in epidemic proportions in Washington. Infestations were found to occur on some 252,800 acres on and adjacent to the Snoqualmie National Forest and Yakima Indian Reservation where western hemlock, Pacific silver fir, Douglas-fir, and grand fir were attacked. Previous epidemics have occurred principally on the Olympia Peninsula and after lasting about two years have subsided rather suddenly without causing significant tree-killing. In Montana, high endemic populations were reported throughout many Douglas-fir stands east of the Continental Divide in conjunction with infestations of the spruce budworm. Epidemic infestations, on a total of 32,000 acres, however, occurred in hemlock stands at scattered locations on the Kootenai National Forest and Glacier National Park in western Montana and on a portion of the Kaniksu

National Forest in northern Idaho. In some of the areas, there was a noticeable reduction in larval population prior to pupation and it is believed that the trend of infestations is downward.

DOUGLAS-FIR TUSSOCK MOTH, Hemerocampa pseudotsugata McD. - At periodic intervals, this important insect pest has occurred in epidemic proportions in the fir forests of most all of the western states. During 1957, a localized outbreak was reported on some 10,000 acres of Douglas-fir second growth in Owyhee County, Idaho and the same species, or a closely related one, became epidemic on approximately 160 acres of white fir in the vicinity of Pinal Mountain near Globe, Arizona. The moth population in Idaho was found to be affected by a virus organism late in the year and the outbreak is expected to collapse without benefit of artificial measures for its control. Aerial spraying of DDT will be undertaken, however, to control the outbreak in Arizona. No new egg masses or other evidence of infestations were to be found in the fir forests of California where the insect had been controlled by aerial spraying in 1956 and no active infestations were reported from Montana.

SPRUCE BUD MOTH, Zeiraphera ratzeburgiana Sax. This insect pest, an accidental introduction in the Pacific Northwest, occurred in epidemic status on Sitka spruce on 52,000 acres along the Oregon and Washington coasts during the year. Areas of heaviest damage was reported to occur on about 34,000 acres on the Siuslaw National Forest.

LARCH BUDMOTH, Zeiraphera griseana (Hbn.). This insect pest, first noted in epidemic status on 33,000 acres in the northern Rocky Mountains in 1955, now occurs on an estimated 250,000 acres in scattered centers in Montana and north Idaho. The outbreak is characterized by a concentration of populations in mature stands of western larch that occur in patches along the summits of ridges and in headwaters of many drainages. Little or no defoliation was noticeable below elevations of 4,200 feet, but above that level, larval feeding was heavy and extended to elevations above 6,000 feet. Outbreaks also were reported from some 39,520 acres on and adjacent to the Okanogan National Forest in Washington. No control is contemplated in any of the infestation areas.

LARCH LOOPER, Semiothisa sexmaculata (Pack). - This defoliating insect was reported from widespread areas in the northern Rocky Mountains and although populations usually were relatively light, heavy infestations were encountered along the Blackfoot River northeast of Bonner, Montana and at a few other locations along the Canadian border. There are no known records of the occurrence of this insect in these areas prior to 1955.

ALPINE FIR DEFOLIATOR. - An unidentified leaf-feeding insect was reported to have defoliated approximately 153,000 acres of alpine fir on and adjacent to the Boise National Forest in Idaho. This is the second year that defoliation has occurred in this general vicinity and the infestation appears to occur only on areas which had been sprayed for control of spruce budworm. Collections of insects have been made from the affected area but identifications are not yet available.

BIRCH DEFOLIATOR - A Lepidopterous insect, as yet unidentified, was reported in epidemic status on paper birch over a wide area in interior Alaska and observations in the infestation area have indicated that moderate to heavy defoliation can be expected throughout the paper birch stands during 1958.

ASPEN LEAFROLLER. - An unidentified defoliator, believed to be a *Choristoneura* spp. was reported in outbreak status on some 500 acres of quaking aspen on the Carson National Forest in New Mexico.

SPRUCE MEALYBUG, *Puto* sp. - Approximately 60,000 acres of Engelmann spruce at two locations on the Dixie and Fishlake National Forests in southern Utah are heavily infested by this unnamed mealybug. Trees of all ages are affected and in areas where the pest has been active for several years, vigor of trees has been materially reduced and many of them are severely deformed. The extent of tree-killing in the area has not been determined but probably occurs only after continued feeding over a period of years. Methods for control of this pest species are not known.

LARCH CASEBEARER, *Coleophora laricella* (Hbn.). - This European insect which is widely distributed in the eastern United States was found in 1957 for the first time near St. Maries, in northern Idaho. Inasmuch as the infestation occurred on a gross area of some 15,000 acres, this pest insect presumably has been present in stands of western larch for the past several years. Defoliation within the area of infestation was severe and it is to be expected that heavy damage to the host trees will continue during 1958.

PINE BUTTERFLY, *Neophasia menapia* F.&F. - At periodic intervals this insect pest occurs in outbreak proportions in the pine stands of the western states and because of its destructiveness, special attention is given to detection of incipient infestations. While several localized infestations were discovered on the Boise, Payette, and Salmon National Forests in Idaho, none were of serious consequence.

FIR NEEDLEMINER, *Epinotia meritana* Hein. - The long-standing outbreak of this needleminer on some 10,000 acres of white fir stands at Bryce Canyon National Park and on the Dixie National Forest in southern Utah is now reported to be endemic. Although the decrease in intensity of the outbreak is attributed primarily to parasites, an aerial spraying program on 4,000 acres also caused a reduction in the pest population. During the past 10 years, this infestation has caused some killing of trees, principally in the understory, and there has been severe weakening of the stand as a whole. Currently, the weakened stand is highly susceptible to attack by bark beetles and tree-killing by *Scolytus ventralis* Lec., is reported to be on the increase in the affected area.

LODGEPOLE NEEDLEMINER, *Recurvaria milleri* Busk. - This important forest pest continued in epidemic status at Toulumne Meadows, Yosemite National Park, California and cumulative defoliation during the past several years is now causing mortality of affected trees. Since 1957 was a flight year for the moth, it is highly likely that new areas of susceptible type were invaded. Efforts thus far to suppress this insect by direct means have not been successful and it is feared that the entire forest stand in affected areas will soon be killed. A closely related species, tentatively identified as a *Recurvaria* species, increased in severity and extent in the ponderosa pine stands of the Southwestern states. Currently, some 126,000 acres are infested whereas only 50,000 acres were reported in 1956. The new areas of infestations are in the vicinity of El Rito, New Mexico, Williams, Arizona, and Rye, Colorado. Damage in all areas affected previous years' growth and defoliation thus far has not been severe enough to cause tree mortality.

PINE SAWFLIES, *Diprion* and *Neodiprion* spp.- Infestations of pine sawflies ranging from a few acres to more than a million acres in size were reported from many sections of the country throughout the year. The largest infestation reported was *N. pratti pratti* Dyar which extended from an area north of Baltimore to the lower end of the Potomac River in Maryland, a gross area of some 1,500,000 acres. Affected trees were pitch-pine and Virginia pine. The occurrence of other sawfly species on much smaller acreages were as follows: *N. lecontei* (Fitch) was prevalent in pine plantations in many areas; infestations were severe in parts of Michigan, Wisconsin, Minnesota, and in the southern and southeastern states, particularly in east Texas and west Florida; it was also unusually abundant in New York, western Maryland, and northeastern Ohio; *N. pratti paradoxicus* Roh. was abundant in southern New Jersey and pitch and shortleaf pines were defoliated over a wide area; *N. sertifer* (Geoff.) caused severe damage to young hard pines in the Lower Peninsula of Michigan and the species appears to be increasing in severity and extent in southern Connecticut and southeastern New York. Populations in Ohio were variable, lower in some areas and higher in others. A virus organism sprayed into infestations during 1953 and 1955 appears to have materially reduced populations in those areas. *D. similis* (Htg.) was abundant on white pine in parts of Minnesota and Wisconsin and for the first time it was reported from local areas in southern Michigan; *N. excitans* Roh. occurred in outbreak status in Arkansas, Texas, Louisiana, Mississippi and in five counties in north-central Florida; *N. taedae linearis* Ross was abundant in Arkansas, at scattered locations in South Carolina, and in the northeastern quarter of Missouri and in southern Illinois. Infestations in Missouri were observed at scattered locations over a gross area of 122,000 acres with the heaviest infestation center on shortleaf pine on a portion of the Poplar Bluff Ranger District, Shawnee National Forest; N. nanulus nanulus Schedl. and N. Manrus Roh. caused moderate defoliation of jack pine in the vicinity of Bemidji, and in Crow Wing County, Minnesota and N. nanulus was quite noticeable on some 2,000 acres in St. Lawrence County, New York; N. pinetum (Nort.) was also reported to be abundant on white pine in New York and in central Ohio. An unidentified species occurred on about 600 acres of ponderosa pine in the vicinity of Grants, New Mexico but larval feeding was confined to previous years' growth and to date there has been no mortality of affected trees.

SPRUCE AND FIR SAWFLIES, Neodiprion and Diprion spp. - The known status of a few species of sawflies attacking spruce and fir is as follows: N. abietis complex was endemic in stands of Douglas-fir throughout southern Idaho but epidemic at the craters of the Moon National Monument in that state and in Hubbard County, Minnesota; the recent outbreak of N. tsugae Midd. in southeast Alaska collapsed from natural causes and close search of the spruce stands from the air and on the ground failed to reveal new outbreak areas. One small infestation of D. hercyniae (Htg.) was reported on white spruce in northeastern Wisconsin.

LARCH SAWFLY, Pristiphora erichsonii (Htg.) - Heavy defoliation of larch by this sawfly was reported throughout the range of the tree species in the Lake States region. The area of defoliation in Minnesota was about the same as that recorded in 1956, and tree mortality resulting from nine consecutive years of defoliation is becoming quite evident in the north-central part of that state. In Wisconsin, defoliation ranging from heavy to complete occurred over most of the northern half of the state and many stands in the east-central area were infested to varying degree. Infestations and severe defoliation also occurred over much of the Upper and Lower Peninsulas of Michigan. This species, first found in the northern Rockies during 1934, spread throughout western Montana and northern Idaho by 1944. There are no records however, of its occurrence in these areas since that time.

The two-lined larch sawfly, Anoplonyx occidens Ross and the western larch sawfly, A. laricivorus Roh. & Midd. however, were reported to have occurred in association with Semiothisa sexmaculata (Pack.) in defoliation of western larch throughout the range of this tree species in Idaho and Montana. Although these two species of sawflies are known to have occurred in epidemic numbers in this general area during 1921 and again in 1938, in each instance the outbreaks subsided the following year and neither insect was recorded again until 1955.

EUROPEAN PINE SHOOT MOTH, Rhyacionia buoliana (Schiff.) - The severity of European pine shoot moth infestations increased materially in the extensive areas planted to red pine and Scotch pine in the Lake States and Central States region. In Michigan, virtually all of the pine plantations are heavily infested in the Lower Peninsula and the insect is also well established in several counties in the Upper Peninsula. In Wisconsin, there has been a spread of infestations north along Lake Michigan and also to the west in the southern part of the state. The insect also caused serious damage to red pine in southern Connecticut and New York, northern New Jersey, Pennsylvania, Delaware and northern West Virginia.

Two species of other pine tip moths occurred in abundance in the southern, southeastern, northeastern and central states region in 1957. *R. frustrana* (Comst.) continued at a high level throughout most of the southeast and it was prevalent also in the south and in portions of Ohio. In northern Mississippi, Louisiana, and Texas trees of commercial size were heavily infested and from the air, the red-fringed crown of affected trees resembled group killing by bark beetles. The closely related species, *R. rigidana* (Fern.) was not as common in any area but it was more abundant than in prior years.

ZIMMERMAN PINE MOTH, *Dioryctria zimmermani* (Grote). - This pine moth was reported in abundance near LaPorte, Indiana on approximately 800 acres of planted pines. Red, Scotch and pitch pines were affected but Scotch pine was damaged to a greater degree than the other species.

MIMOSA WEBWORM, *Homadaula albizziae* Cl This insect pest was reported to have caused heavy defoliation of honey locust and mimosa trees at several locations in the vicinity of Indianapolis, Indiana and in southeastern Missouri and in Ohio. Defoliated trees, however, were not killed and the infestations are not expected to continue in outbreak proportions.

SCALE INSECTS - The status of damaging species of scale insects throughout the forested areas of the Nation is not accurately known but several species causing damage in local areas were reported during the year. Small localized infestations of *Nuculaspis californicus* (Colm.) and *Phenacaspis pinifoliae* (Fitch) occurred on ponderosa pines in the vicinity of Spokane, Washington as remnants of epidemic populations that were decimated during 1951 and again in 1955 by extremely low winter temperatures. The latter species also was reported throughout Minnesota on several pine hosts. The Prescott scale, *Matsucoccus vexillorum* Morrison was found in moderate numbers on ponderosa pine at the North Rim, Grand Canyon National Park and on the Prescott National Forest in Arizona but tree-damage was restricted to branch killing in affected areas. Moderate infestations of pine tortoise scale, *Toumeyella numismaticum* (P&McD.) occurred on Scotch pine in portions of Minnesota, Michigan and Wisconsin, and on Virginia pine in several areas in Maryland, West Virginia, and Pennsylvania. In these latter states, surveys during the summer months revealed that predation by the Coccinellids, *Hyperaspis binotata* (Say) and *H. signata* (Oliv), and the Lepidopteron, *Lactilia coccidivora*, had controlled the scale in areas where serious infestations were reported. The red pine scale, Matsucoccus resinosae B.&G. is still abundant in some plantations of red pine in the Bridgeport, Connecticut area and on Long Island and in Westchester County, New York.

TENT CATERPILLARS, Malacosoma spp. - The severity and extent of tent caterpillar infestations changed very little in most sections of the country from conditions noted during 1956. While M. disstria (Hbn.) was found in outbreak proportions in northwestern Wisconsin and in the western part of Upper Peninsula in Michigan, tree defoliation in Minnesota was confined to a comparatively small area in south-central St. Louis County. M. fragilis Stretch was abundant and caused heavy defoliation to stands of aspen in parts of Arizona, New Mexico and Colorado but the acreages of infestations were reduced over 1956 and the trend of populations is downward.

GYPSY MOTH, Porthetria dispar (L) - The gypsy moth infestations remained at a low level in New York and most of New England. In Maine and portions of Vermont and New York, low winter temperatures and late spring frosts were apparently responsible for considerable reduction in gypsy moth populations. The large-scale Federal spray program aimed at eradication of this pest in the tri-state area of New York, New Jersey and Pennsylvania covered a gross area of 2,902,517 acres and other cooperative eradication spraying included 102,820 acres in Pennsylvania and 18,880 acres in Michigan. In the latter state, no moths could be found subsequent to spraying and it is possible the insect has now been eradicated in that area.

COOLEY GALL LOUSE, Chermes cooleyi Gill. - High endemic infestations of this insect were reported in stands of Douglas-fir of Christmas tree size in the upper Kootenai River and Tobacco River Valleys in northwestern Montana. The infestations in all instances appeared to be associated with severe infections of a needle blight identified as Rhabdocline pseudotsugae Syd.

SARATOGA SPITTLEBUG, Aphrophora saratogensis (Fitch). - This forest insect continued to be a major pest in red pine plantations in portions of Wisconsin and the Upper Peninsula of Michigan, and on jack-pine in Minnesota. There was, however, a widespread reduction in nymphal populations in some infested areas during the spring months and artificial measures for control were needed only on approximately 10,000 acres during the year.

TEXAS LEAF-CUTTING ANT, Atta texana Buckley - This insect is an important pest in portions of Texas and Louisiana and entire plantations of pine seedlings up to 4 years of age often are destroyed within a period of a few days when other green plants are not available to the ants during the winter months. Ant-towns, and resultant defoliation of pines, have become more numerous in recent years in sandy-soil where annual rainfall has been deficient. In areas where ant infestations are prevalent, fumigation of the soil is a prerequisite to planting.

VARIABLE OAK LEAF CATERPILLAR, Heterocampa manteo (Dbldy.) The variable oak leaf caterpillar was reported from only one small area in Warwick County, Virginia during the year in contrast to the outbreak covering several millions of acres in the state in 1956. For reasons not wholly known, there was little or no emergence of adult insects despite the fact that prepupae were abundant in the soil during the winter 1956-1957. Sudden collapse of infestations of this insect is a characteristic of this pest.

ELM SPANWORM, Ennomos subsignarius (Hbn.). - The elm spanworm which has been epidemic in the hardwood stands of northern Georgia for the past two years increased in severity and extent during 1957. The acreage of defoliation, currently estimated on some 100,000 acres in Georgia, also occurs on about 200,000 acres in southeastern Tennessee and in southwestern North Carolina. Heaviest defoliation thus far has occurred on hickory and oak growing along the tops of ridges.

SHORT-TAILED CRICKET, Anurogryllus muticus (DeG.) was discovered as a new pest of germinated pine seedlings in portions of Louisiana, east Texas and Arkansas. The insect was found to sever the stem of the seedling and to consume the tender foliage in its underground tunnel.

FALL CANKERWORM, Alsophila pometaria (Harr.) - A noticeable increase in extent and severity of cankerworm infestations occurred in portions of Maryland and Maine during the spring months. While chestnut oak and associated oak species in the infestation areas were stripped of foliage, little or no feeding was noticed on other tree species in the affected areas.

SADDLED PROMINENT, Heterocampa guttivitta (Wlk.) - The large-scale outbreak of this insect which occurred in portions of New York, Pennsylvania, New Hampshire and New York during 1956 was reported to have collapsed from natural causes. Heavy parasitism to larval brood is believed to have caused the reduction in populations.

PINE LEAF APHID, Pineus pinifoliae (Fitch) - The coniferous galls on red spruce caused by this aphid were particularly abundant in most of the northeastern states, particularly in western Maine, and in New York and Vermont. Another gall-former on spruce, and a tip feeder on white pine, Pineus floccus (Patch) caused exceptionally severe damage to red spruce in Vermont and it was reported frequently from New York also.

FRUIT TREE LEAF ROLLER, Archips argyrospila (Wlkr.). For the second year, the fruit tree leaf roller was epidemic over a large area on the Lower Peninsula of Michigan and infestations of lighter proportions were reported from northeastern Wisconsin. Heavy parasitism of larval broods occurred in both states, however, and infestations are expected to decline in 1958. Another leaf roller, Sparganothis pettitana Robinson, and a webworm, Tetralopha, caused severe defoliation of sugar maple in portions of Wisconsin and Michigan. Feeding by the two insect species was somewhat lighter than occurred in 1955 and 1956 and with the abundance of predators and parasites noted in 1957, it is expected that the infestations will be materially reduced during 1958.

THE RED-HUMPED OAKWORM, Symmerista albicosta (Hbn.). The red-humped oakworm was reported to have occurred in outbreak status on some 45,000 acres of oak type in several counties in Michigan and trees were severely defoliated in all areas affected. Due to parasitism of larval broods, the outbreak is expected to subside before serious damage or tree mortality occurs.

WHITE GRUBS Phyllophaga spp. Unusually heavy flights of Phyllophaga beetles were reported from Texas and other southern states during the early spring months and subsequently severe damage by grubs occurred to pine seedlings in many areas. In one instance, a million nursery seedlings were reported to have been killed in Arkansas.

Washington, D. C.
May 1, 1958

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